



# ***Eleventh Air Force***

***Integrity - Service - Excellence***

## **Alaska Civil/Military Aviation Council**

# **Welcome!**

**Please Check in at Sign-up Table**



# ***Eleventh Air Force***

***Integrity - Service - Excellence***

## **Alaska Civil/Military Aviation Council**

**Maj Rob Peck**

**Administration**





# *Eleventh Air Force*

*Integrity - Service - Excellence*

## **ADMINISTRATION**

**Silence cell phones and other accessories**

**Please ensure you have signed in**

**Presentation information**

**Hold questions until the end of presentations**

**Introductions**





# ***Eleventh Air Force***

***Integrity - Service - Excellence***

## **Alaska Civil/Military Aviation Council**

**Col Marc A. Luiken**





# ***353d Combat Training Squadron***



## **RED FLAG-Alaska FY10**

### **Update for ACMAC**



**Mr. Pete “Bruster” Bussa**  
**Operations, 353 CTS**

**U.S. AIR FORCE**

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# RF-A 10-2

15 – 30 Apr 10



## Personnel

- Team Chief: LtCol Sumner
- Asst Chief: Maj Mandich
- Det 1: Capt Peterson
- 18 AGRS: (TBD)

## Timeline

- FPC 12 – 15 Jan 10
- Inbriefs 15 Apr 10
- Fam Day 16 Apr 10
- Exercise 19-30 Apr 10

## Distant Frontier

## Participants (\*=CPO // Pending / Confirmed / Declined)

### USAF / ANG

*Elmendorf	19 FS	12 x F-15C
*Kunsan	80 FS	10 x F-16
*S-J	335 FS	12 x F-15E
*Elmendorf	525 FS	12 x F-22 (Not likely)
*Barksdale	96 BS	2 x B-52
*Elmendorf	517 AS	3 x C-17
*Kadena	961 AACS	1 x E-3
*Elmendorf	962 AACS	1 x E-3
*Eielson	18 AGRS	12 x F-16
Lakenheath	492FS	12 x F-15E
TTF	TBD	X x KC135

### USN

Whidbey	VAQ 134	4xEA-6B
Iwakuni	VMA-211	8xAV-8B

### International

Belgium	(# x F-16 M-role) 1 x C-130
Germany	M-Role (Eurofighter)
Turkey	F-16 M-Role
Israel	F-16 M-Role





# RF-A 10-3

10 – 25 Jun 10



## Personnel

- Team Chief: Maj Nudi
- Asst Chief: Maj Baer
- Det 1: (TBD)
- 18 AGRS: (TBD)

## Timeline

- FPC 8-12 Feb 10
- Inbriefs 10 Jun 10
- Fam Day 11 Jun 10
- Exercise 14-25 Jun 10

## Distant Frontier

## Participants (\*=CPO // Pending / Confirmed / Declined)

### USAF / ANG

*Kunsan	35 FS	12 x F-16
*Shaw	79 FS	12 x F-16CJ
*Jacksonville ANG	159 FS	12 x F-15C
•*Mt Home	389 FS	12 x F-15E
•*Davis Monthan	354 FS	12 x A-10
*Ellsworth	37 BS	2 x B-1
*Kadena	961 AACS	1 x E-3
*Elmendorf	962 AACS	1 x E-3
*Yakota	36 AS	3 x C-130
*Eielson	18 AGRS	12 x F-16
LAANG	122 ASOS	13xJTAC
TTF	(TBD)	X x KC135

### USN

(Base)	(Unit)	(# x MDS)
--------	--------	-----------

### International

Greece	5 x F-16 M-role
Japan	6 X F-15J / JAWACS / 2 x KC 767 3 x C-130 / Stinger
Spain	F-18 (A2G) / Tanker / SOF
Italy	M-role/Eurofighter/Tanker/SOF
Korea	6 x F-15K / 1 or 2 x C-130's
Brazil	WLO (Fighter)
Portugal	WLO (Fighter)
Romania	WLO (C-130)



# RF-A 10-4

## 5 – 20 Aug 2010



### Personnel

- Team Chief: Maj Mentch
- Asst Chief: Maj Schmidt
- Det 1: (TBD)
- 18 AGRS: (TBD)

### Timeline

- IPC 9-11 Mar 10
- FPC 3-7 May 10
- Inbriefs 5 Aug 10
- Fam Day 6 Aug 10
- Exercise 9-20 Aug 10

### Distant Frontier

### Participants (\*=CPO // Pending / Confirmed / Declined)

#### USAF / ANG

*Misawa	13 FS	12 x F-16
*Whiteman	13 BS	4 x B-2
*Elmendorf	19 FS	12 x F-15C
*Osan	36 FS	12 x F-16
*Elmendorf	90 FS	12 x F-22
*Langley	94 FS	8 x F-22
*Traux Fld ANG	176 FS	8 x F-16
*Kadena	961 AACS	1 x E-3
*Elmendorf	962 AACS	1 x E-3
*Eielson	18 AGRS	18 x F-16

#### USN

(Base)	(Unit)	(# x MDS)
--------	--------	-----------

#### International

Australia	(Unit)	(# x MDS)
Canada	(Unit)	(# x MDS)
United Kingdom	(Unit)	(# x MDS)



# RED FLAG-Alaska FY10

Questions?



# **ALASKA CIVIL/MILITARY AVIATION COUNCIL**

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## **AIRFIELD STATUS UPDATE**



### **Airport Presentations from:**

- Ted Stevens Int'l – Mr. Iagulli**
  - Elmendorf AFB – Capt Hughes**
  - Fairbanks Int'l – Ms. Osborn**
  - Allen Army Airfield – Mr. Mull**
  - LADD Army Airfield – Mr. Prewitt**
  - Eielson AFB – Capt Stimpfel**
-



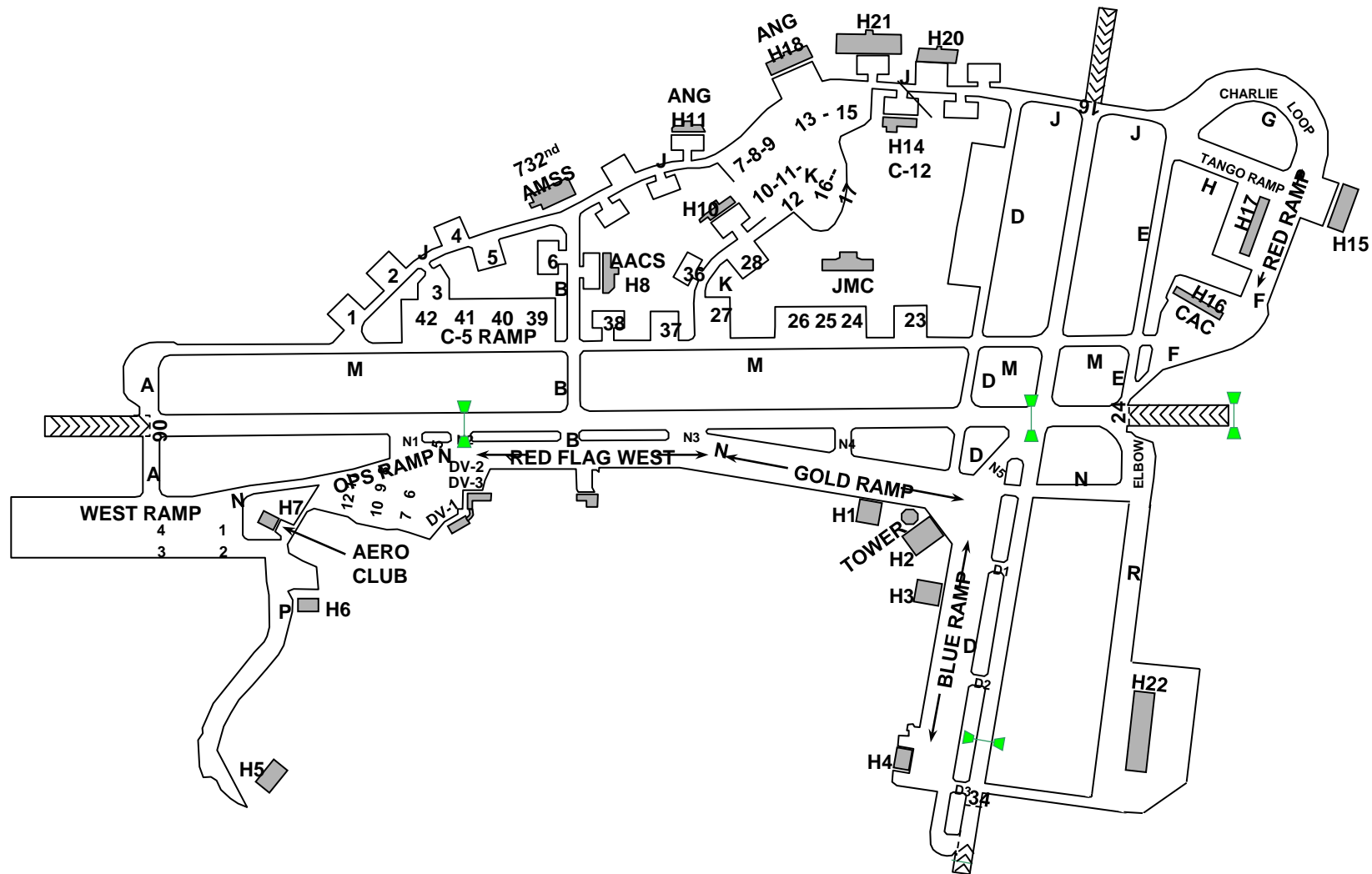
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# Ted Stevens Anchorage International

CONSTRUCTION PROJECTS / NAVAIDS	CONSTRUCTION PERIOD	EFFECTS/LIMFACs/ TEMPORARY OPS
Rebuild/Extend Rwy 7R/25L	East half – Summer 2010 West half – Summer 2011	Cat III N/A during Construction
Rwy 7L Cat II Upgrade	Spring 2010	Cat I Ops until complete FLIP/Flight check dependent
Twy E/L/M Rebuild	Summer 2011	Limited Heavy Acft Parking
VOR Relocate	Summer 2010 (tentative)	Complete airspace/FLIP rewrite



# Elmendorf AFB



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# Elmendorf AFB

## Short-Term

CONSTRUCTION PROJECTS / NAVAIDS	CONSTRUCTION PERIOD	EFFECTS/LIMFACs/ TEMPORARY OPS
Replace Cables 4 and 5	20 Apr-18 Aug 10	120 day closure of 16/34
Add helipad	Summer 2010	Additional Alert Msn at EDF
176 WG move to EDF	July 2010	Increase C-130/HH-60 ops

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# Elmendorf AFB

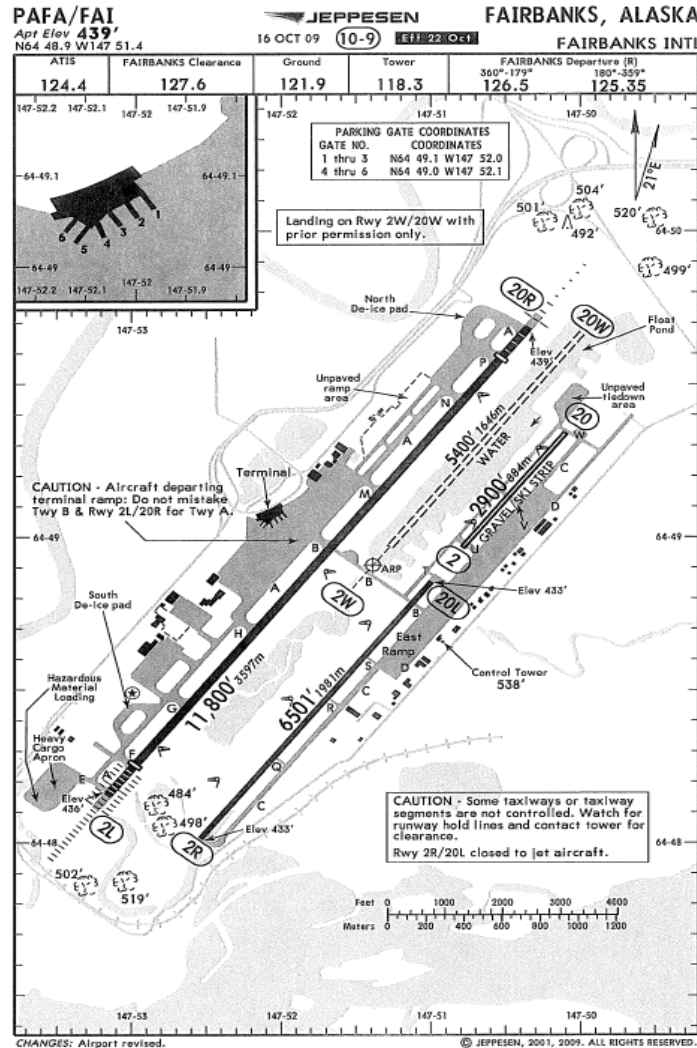
## Long-Term

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CONSTRUCTION PROJECTS / NAVAIDS	CONSTRUCTION PERIOD	EFFECTS/LIMFACs/ TEMPORARY OPS
Complete Fighter town	Present-2011	Primary departure for F-22 off Rwy 34.



# Fairbanks International



# Fairbanks International

## Short-Term

CONSTRUCTION PROJECTS / NAVAIDS	CONSTRUCTION PERIOD	EFFECTS/LIMFACs/ TEMPORARY OPS
Rehabilitation twy A	Summer 2010	Occasional twy closures
Rehabilitation West Ramp	Summer 2010	None

# Fairbanks International Long-Term

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CONSTRUCTION PROJECTS / NAVAIDS	CONSTRUCTION PERIOD	EFFECTS/LIMFACs/ TEMPORARY OPS
Access control improvements	2010-2011	None



# Allen Army Airfield



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# Allen Army Airfield

## Short-Term

CONSTRUCTION PROJECTS / NAVAIDS	CONSTRUCTION PERIOD	EFFECTS/LIMFACs/ TEMPORARY OPS
Repair Runway 7/25	Summer 09	None – Complete
Install BAK-12	May – July 09	None – Complete
Complete RW Fuel Point	May 09	None – Nov 09 Completion
Install Fiber Optics	Summer 09	None – Complete

# Allen Army Airfield Long-Term

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CONSTRUCTION PROJECTS / NAVAIDS	CONSTRUCTION PERIOD	EFFECTS/LIMFACs/ TEMPORARY OPS
None Planned		



# Allen Army Airfield Repair Runway 7/25

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# Allen Army Airfield Generator Vault

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# Allen Army Airfield Fuel Point

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# Allen Army Airfield BAK-12 Aircraft Arresting System

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# Allen Army Airfield Baker Life Chute

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**Figure 1**

# LADD Army Airfield

## Short-Term

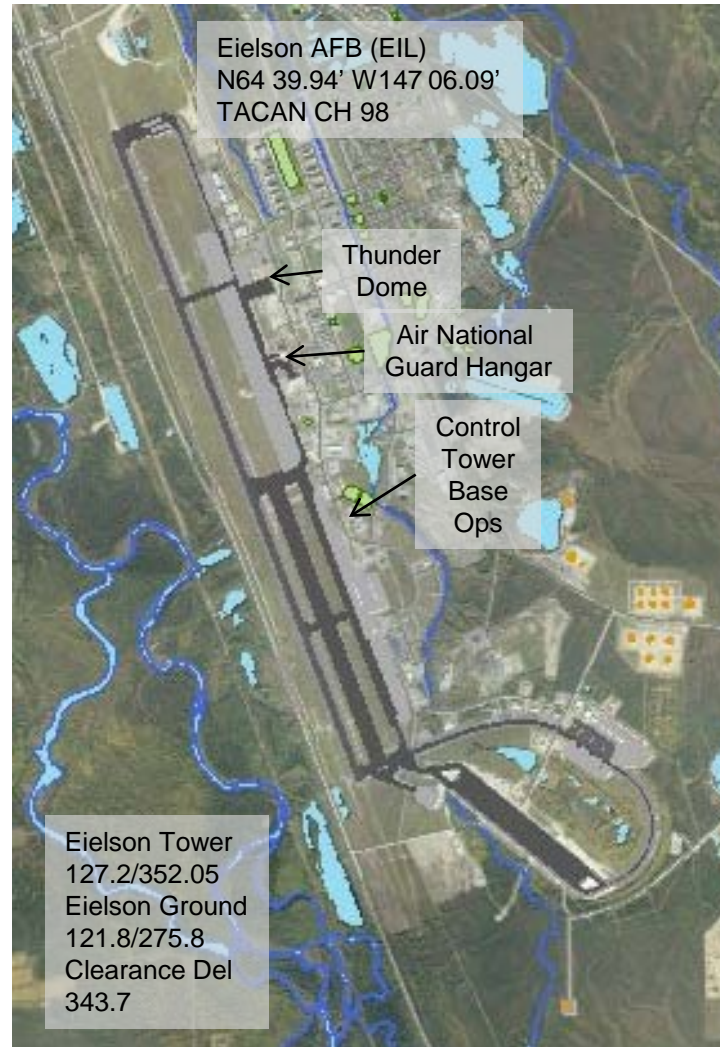
CONSTRUCTION PROJECTS / NAVAIDS	CONSTRUCTION PERIOD	EFFECTS/LIMFACs/ TEMPORARY OPS
Runway 7L ALSF 1	MAR 10-APR 10	N/A
COMPLETE RESTRIPE AIRFIELD (HELICOPTER RUNWAY)	JUN-JUL 10	SHORT TERM CLOSURES OF AFFECTED MOVEMENT AO's

# LADD Army Airfield

## Long-Term

CONSTRUCTION PROJECTS / NAVAIDS	CONSTRUCTION PERIOD	EFFECTS/LIMFACs/ TEMPORARY OPS
FENCE AIRFIELD	SUMMER 2010	MIN IMPACT/NOTAM
R&R AFLD LIGHTING REGULATORS	AUG-SEP 10	INCREASED PAR MINIMUMS DURING DARKNESS/IFR
AV BDE FACILITIES	SUMMER 2012	MIN IMPACT/NOTAM

# Eielson AFB



# Eielson AFB

## Short-Term

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CONSTRUCTION PROJECTS / NAVAIDS	CONSTRUCTION PERIOD	EFFECTS/LIMFACs/ TEMPORARY OPS



# Eielson AFB

## Long-Term

CONSTRUCTION PROJECTS / NAVAIDS	CONSTRUCTION PERIOD	EFFECTS/LIMFACs/ TEMPORARY OPS
Repair North Loop Twy	2009	Taxiway closed. 2-Phases
Repair S. Golf Twy P1	2010	S. Golf Closed
Repair S. Golf Twy P2	2011	S. Golf Closed
Repair S. Loop Twy P1	2012	S. Loop Closed
Repair S. Loop Twy P2	2013	S. Loop Closed

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# QUESTIONS?



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# BREAK TIME

# Surveillance and Broadcast Services

## Program Overview

**By:** Jere Hayslett, WSA SBS Manager

**November 4, 2009**



**Federal Aviation  
Administration**



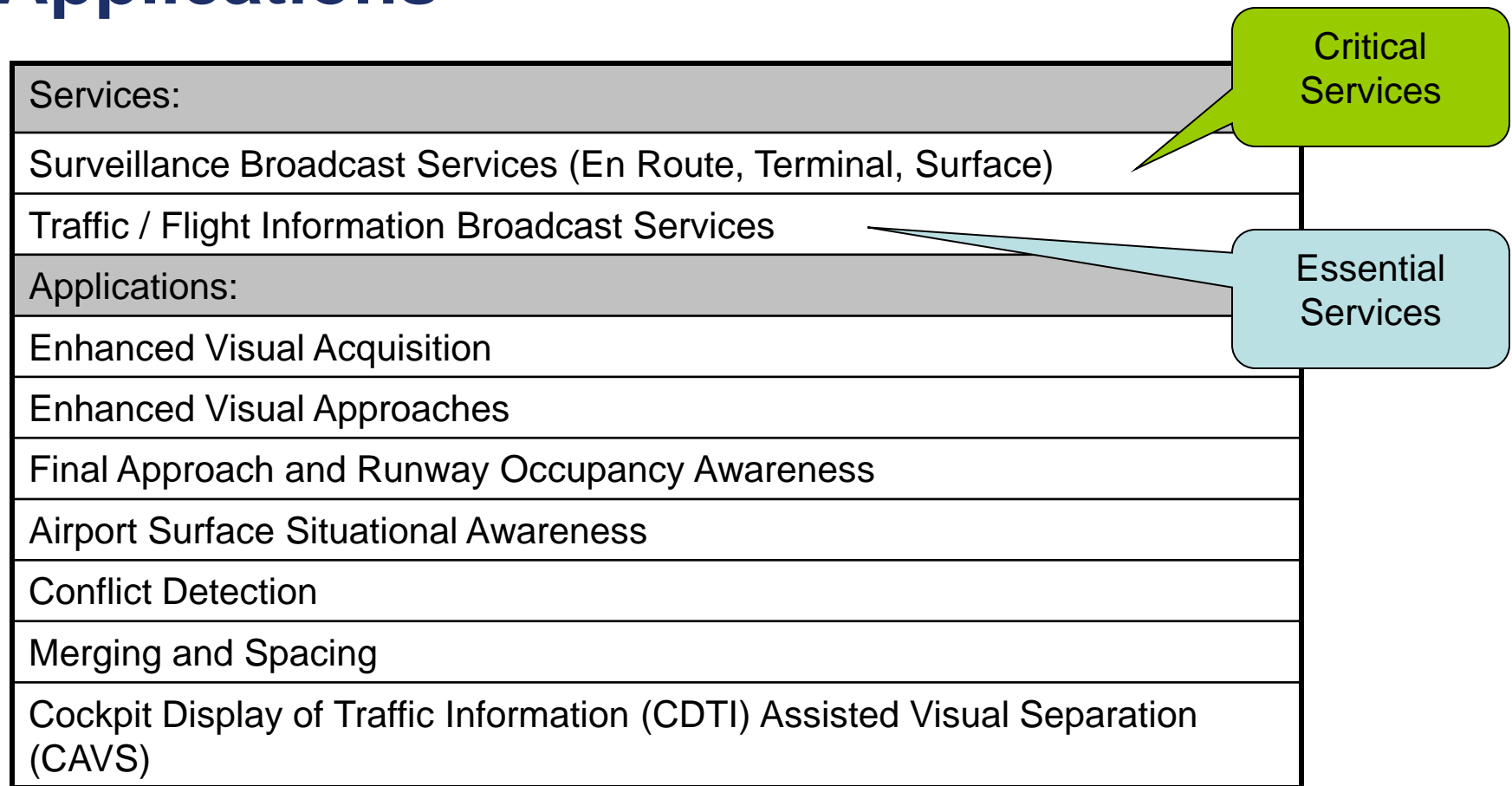
# Background: Automatic Dependent Surveillance - Broadcast (ADS-B)

- **Automatic**
  - Periodically transmits information without pilot or operator input
- **Dependent**
  - Position and velocity vector are derived from the Global Positioning System (GPS)
- **Surveillance -**
  - A method of determining position of aircraft, vehicles, or other asset
- **Broadcast**
  - Transmitted information available to anyone with the appropriate receiving equipment





# Overview: Initial ADS-B Services and Applications



# Essential Services: Traffic Information Service - Broadcast

TIS-B is a service which provides ADS-B equipped aircraft with position reports from secondary surveillance radar on non-ADS-B equipped aircraft.



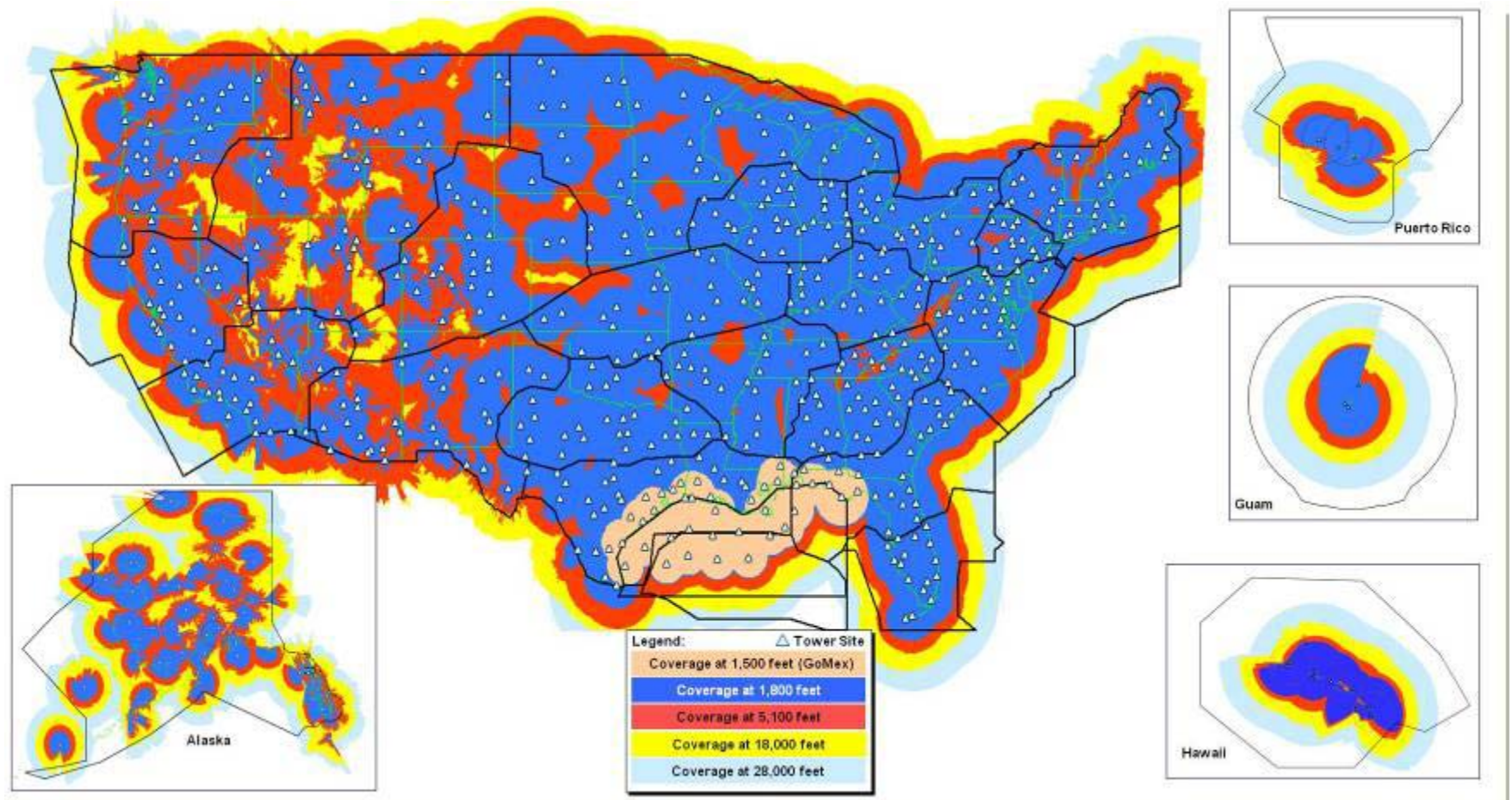
# Essential Services: Flight Information Service - Broadcast



**FIS-B transmits graphical National Weather Service products, temporary flight restrictions (TFRs), and special use airspace.**

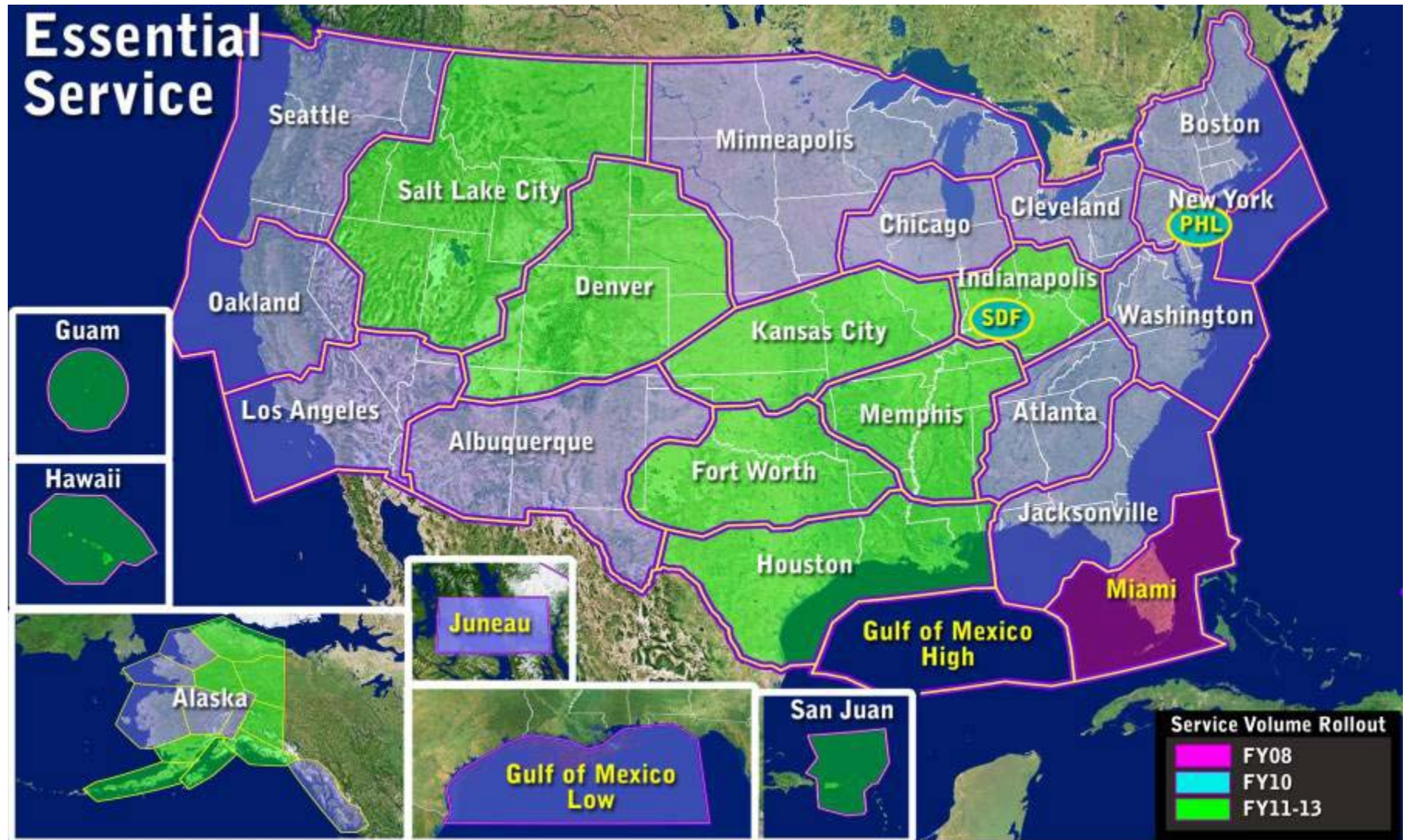


# Ground Infrastructure: 794 Ground Station Solution Provides National Coverage



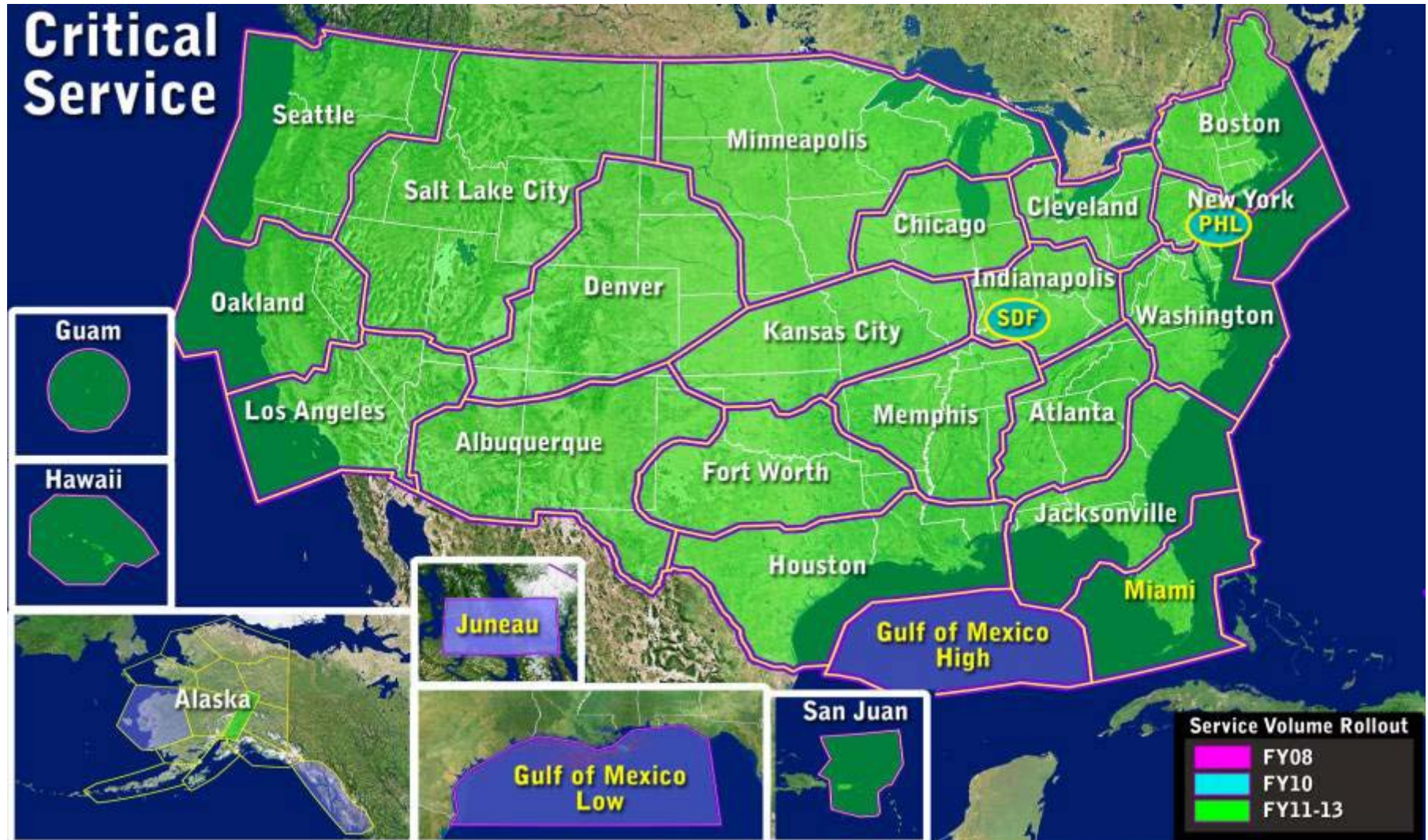


# Essential Services - Service Volume Roll-Out





# Critical Services Service Volume Rollout



# Notice of Proposed Rulemaking (NPRM)

## Summary

- **All aircraft operating in the following airspace would have to meet the proposed performance requirements for ADS-B Out**
  - Class A, B and C airspace
  - All airspace at and above 10,000 feet MSL over the 48 contiguous United States and the District of Columbia
  - Within 30 nautical miles of airports listed in 14 CFR Part 91, Appendix D, from the surface up to 10,000 feet MSL
  - Class E airspace over the Gulf of Mexico from the coastline of the United States out to 12 nautical miles, at and above 3,000 feet MSL

# NPRM Summary: Broadcast Links and Performance Requirements

- **Broadcast Links**

- Below FL240: UAT and 1090ES allowed
- Above FL240: 1090 ES required

- **Performance Requirements**

- Meets the performance requirements in TSO-C166a (1090ES), or later version; or
- Meets TSO-C154b (UAT), or later version; and
- Meets minimum broadcast message element set outlined in NPRM

## Rulemaking Next Steps: Schedule to Final Rule

Milestone	Planned Date of Completion	Status / Comments
<b>FAA Rulemaking Team finalizes RPR Phase 3</b>	<b>January 14, 2009</b>	<b>Complete</b>
<b>RPR Phase 3 Submitted to ARM</b>	<b>January 21, 2009</b>	<b>Complete</b>
<b>Rulemaking Council Approval of RPR</b>	<b>January 27, 2009</b>	<b>Complete</b>
<b>Rulemaking Team Drafts Final Rule</b>	<b>May 2009</b>	<b>Complete</b>
<b>Final Rule Economic Assessment</b>	<b>August 2009</b>	<b>Complete</b>
<b>Final Rule Concurrence through Directors</b>	<b>October 2009</b>	<b>Complete</b>
<b>Final Rule Concurrence through Associates</b>	<b>November 2009</b>	<b>Ongoing; Briefing to Day and Krakowski scheduled for 11/9/09</b>
<b>Final Rule Concurrence through Administrator</b>	<b>December 2009</b>	
<b>Final Rule Approved through OST</b>	<b>January 2010</b>	
<b>Final Rule Approved through OMB</b>	<b>April 2010</b>	
<b>Final Rule Published in Federal Register</b>	<b>April 2010</b>	

RPR = Rulemaking Project Record



# FY2009 / FY2010 Schedule

Milestone	Planned Date of Completion / Status
FY2009	
Louisville Service Acceptance Test (SAT)	April 2009 / Complete
Gulf of Mexico Service Acceptance Test (SAT)	June 2009 / Complete
Philadelphia Service Acceptance Test (SAT)	August 2009 / Complete
Gulf of Mexico VHF Communications Initial Operating Capability (IOC)	September 2009 / On track
FY2010	
Juneau Service Acceptance Test (SAT)	October 2009
Louisville IOC of Surveillance Services	October 2009
Gulf of Mexico IOC of Surveillance Services	December 2009
Philadelphia IOC of Surveillance Services	February 2010
Juneau IOC of Surveillance Services	April 2010
Final Rule Published	April 2010
Critical Surveillance Services ISD for ADS-B	September 2010



# FAA / DoD ADS-B Agreement

- **The FAA and DoD are working collaboratively to develop a Memorandum of Understanding (MOU) between the agencies**
- **Key areas that may be included in the MOU are:**
  - **Development of the ADS-B DoD business case**
  - **ATC procedure development**
  - **Routes and Special Use Airspace (SUA)**
  - **Security**
  - **Planned DoD Global Positioning System (GPS) enhancements.**



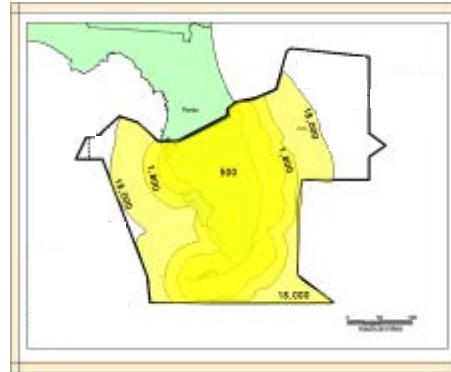
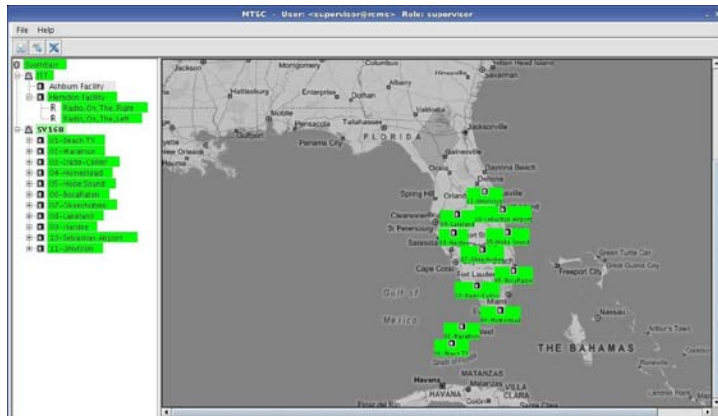
# Eastern Service Area – Miami Key Site



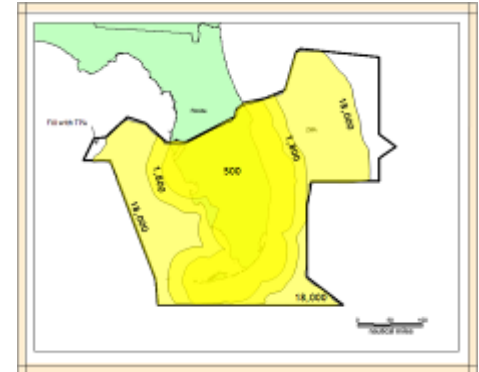
# Eastern Service Area – Miami Key Site

- **South Florida Broadcast Services**
  - Operational since August 2008

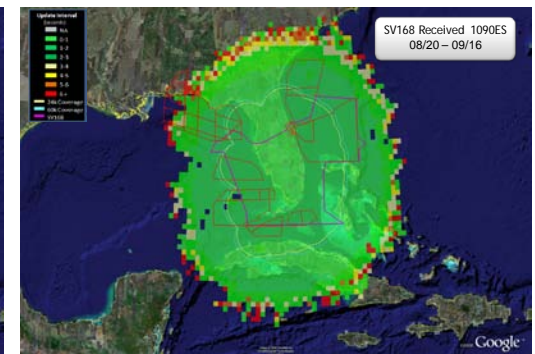
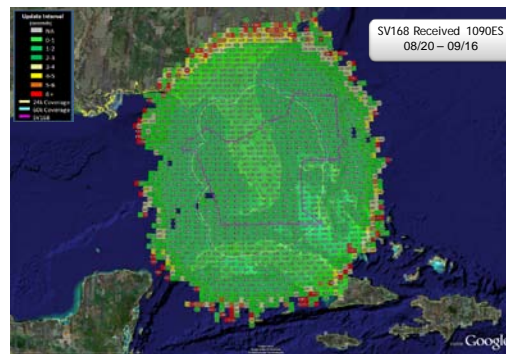
*Radio Station Status 9/24/08*



**SV-168 UAT – Overview  
(TIS-B and FIS-B)**



**SV-168 1090ES –  
Overview (TIS-B)**



# Critical Services: Eastern Service Area Key Sites

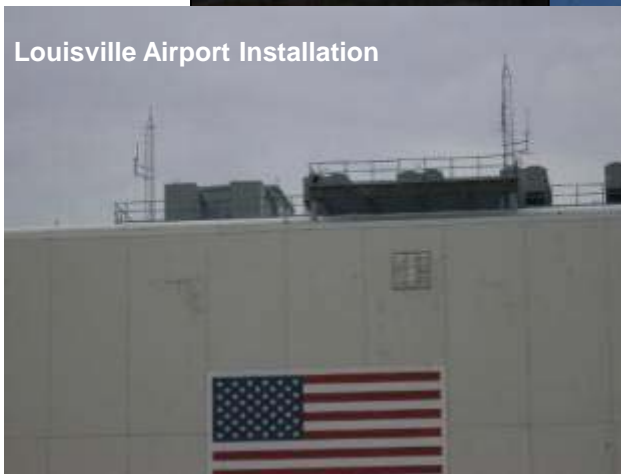
- Louisville Terminal Service Volume (#85) / Surface Service Volume (#211)
- SDP: Louisville TRACON / SDF ATCT
- Key Milestones:
  - CARTS Delta OT – Sept 29 – Oct 9
  - AVN Certification Flight Check- Oct 14 - Oct 16
  - CARTS Regression at WJHTC Oct 20 – Oct 22
  - Deliver IOC Software to SDF – Oct 26th
  - CARTS Delta OT at SDF Oct 27 – 29 (DRs: 9-Priority 1; 3-Priority 2)
  - Final AVN Certification Flight Check – Oct 27 - 28
  - SDF IOC – OCT 30th



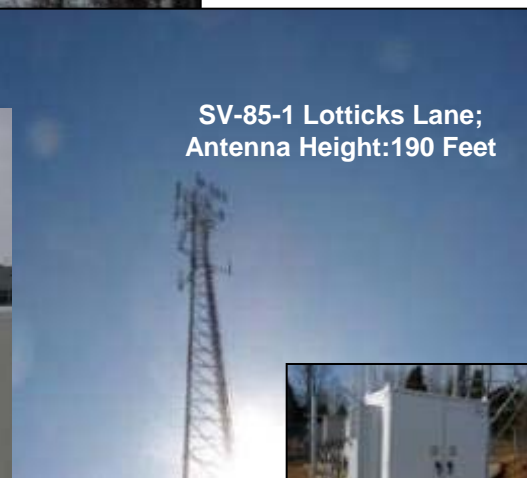
SV-85-2 Simpsonville Antenna  
Height: 200 Feet



Louisville Airport Installation



SV-85-1 Lotticks Lane;  
Antenna Height: 190 Feet



ITT SDP Site Survey:

COMPLETE

June 17, 2008

ITT SDP Equipment

Installation:

COMPLETE

December 8, 2008

Service Integration

Test:

COMPLETE

January 29, 2009

Service Acceptance

Test:

COMPLETE

May 1 2009

Formal Integration

Testing with

Automation

October 2009

Initial Operating

Capability:

October 2009



# Critical Services: Eastern Service Area Key Sites

- Philadelphia Terminal Service Volume (#28)/ Surface Service Volume (#207)
- SDP: Philadelphia TRACON/ Philadelphia ATCT
- Automation: STARS
- Key Milestones:
  - STARS:
    - Integrated Phase II testing 85% complete
      - Includes live ADS-B feeds
      - First two flight tests completed on Sept 8<sup>th</sup> – Oct 8<sup>th</sup>
    - R21 OT&E at WJHTC started Oct 20<sup>th</sup>, Complete Nov 5<sup>th</sup>
    - Separation Standards Flight Test – November 16 - 20
  - ASDE-X Installation with UAT Upgrades: November 2009
    - Investigation of UAT timestamp issue continues
  - ASDE-X IOC: November 18<sup>th</sup>



ITT SDP Site Survey:  
COMPLETE

September 9, 2008

ITT SDP Equipment  
Installation:  
COMPLETE

May 14, 2009

Service Integration  
Test:  
COMPLETE

June 2009

Service Acceptance  
Test:  
COMPLETE

August 2009

Formal Integration  
Testing with  
Automation

February 2010

Initial Operating  
Capability:

February 2010



# Critical Services: Central Service Area Key Site

- Gulf of Mexico Service Volumes (#179 & #180)
- SDP: Houston ARTCC - Automation: HOST (ERAM delayed)
- Key Milestones:
  - VHF - Communications IOC – September 2009
    - 6 New Systems: 3 (Shore) and 3 (Platforms)
    - *Site Selection and Agreements:* 6 of 6\*
    - *Installed / In Testing:* **6** of 6\*
    - *Operational:* **6** of 6\*
  - AWOS - Weather Installations – December 2009
    - 35 New Sites: 35 (Platforms)
    - *Site Selection and Agreements:* 33 of 35
    - *Installed / In Testing:* **15** of 35
    - *Operational:* 0 of 35
  - ADS-B - Surveillance IOC – December 2009
    - 21 New Sites: 9 (Shore) and 12 (Platforms)
    - *Site Selection and Agreements:* 21 of 21
    - *Installed / In Testing:* **16** of 21
    - *Operational:* 0 of 21

\* 9 Total VHF Communications Sites; 3 not required for IOC ★



ITT SDP Site Survey:  
COMPLETED

July 2008

ITT SDP Equipment  
Installation:  
COMPLETED  
February 2009

Service Integration  
Test:  
COMPLETED  
May 2009

Service Acceptance  
Test:  
COMPLETED  
June 2009

Formal Integration  
Testing with  
Automation  
COMPLETED  
September 2009

Initial Operating  
Capability: ✖

December 2009

# Alaska



# Critical Services: Western Service Area

- **Juneau En Route Service Volume 178**

- SDP: Anchorage ARTCC
- Automation: MEARTS

## Four Radio Stations

- **Sisters Island installation – Complete**
- **AT&T Mile 11 - Complete**
- **Williams Mountain- installation in progress (exp completion-Nov)**
- **Gustavus – Site pending**



**Williams Mountain**

ITT SDP Site Survey:  
COMPLETED  
November 2008

ITT SDP  
Equipment  
Installation  
**COMPLETED**  
July 2009

Service  
Integration  
Test:  
**COMPLETED**  
Sept 2009

Service  
Acceptance  
Test: \*  
October  
2009

Juneau WAM  
Initial Operating  
Capability  
November 2009

Formal  
Integration  
Testing with  
Automation  
March 2010

Initial  
Operating  
Capability:  
April 2010

# Proven Safety Benefits

- Capstone Phase I (**YK Delta**)- **47% reduction** in the overall accident rate between SBS/Capstone-equipped and non-equipped aircraft
- Capstone Phase II (**SE Alaska**) – **36% reduction** in accident rate for equipped aircraft compared to non-equipped aircraft.
- Supported by recent pilot surveys taken in the SE Alaska region



# Transition to NextGen ADS-B (ITT)

- Replace all UAT Capstone GBTs with ITT UAT / 1090 ES GBTs – End of 2010
- Additional FIS-B/TIS-B services
  - WAM traffic source
- Key site test of NextGEN ADS-B surveillance at Anchorage ARTCC for Juneau airspace- April 2010

Sisters Island –  
Installation in  
progress



AT&T Mile 11 –  
Installation in progress



Williams Mtn- installation  
in progress

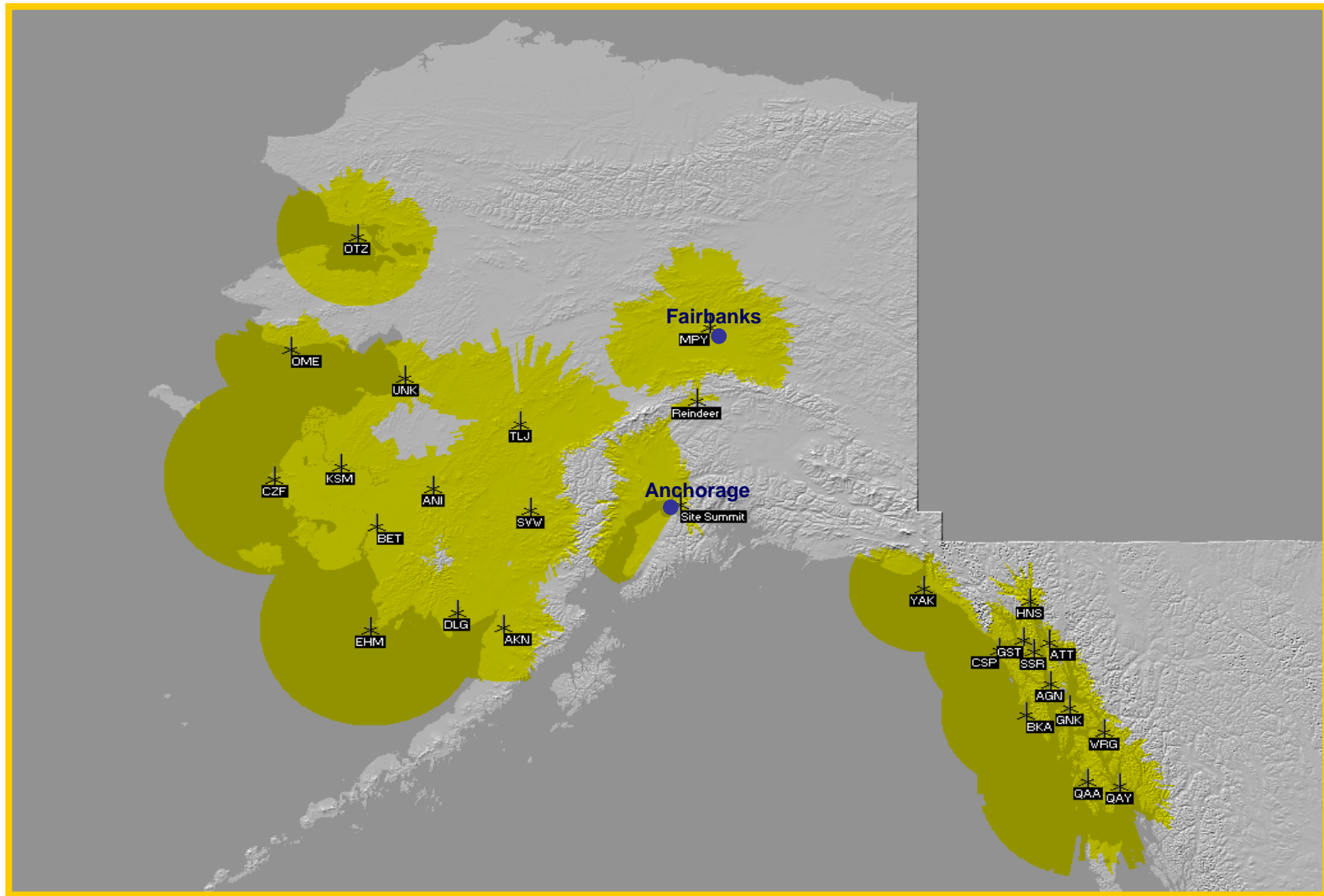


Gustavus – Site pending

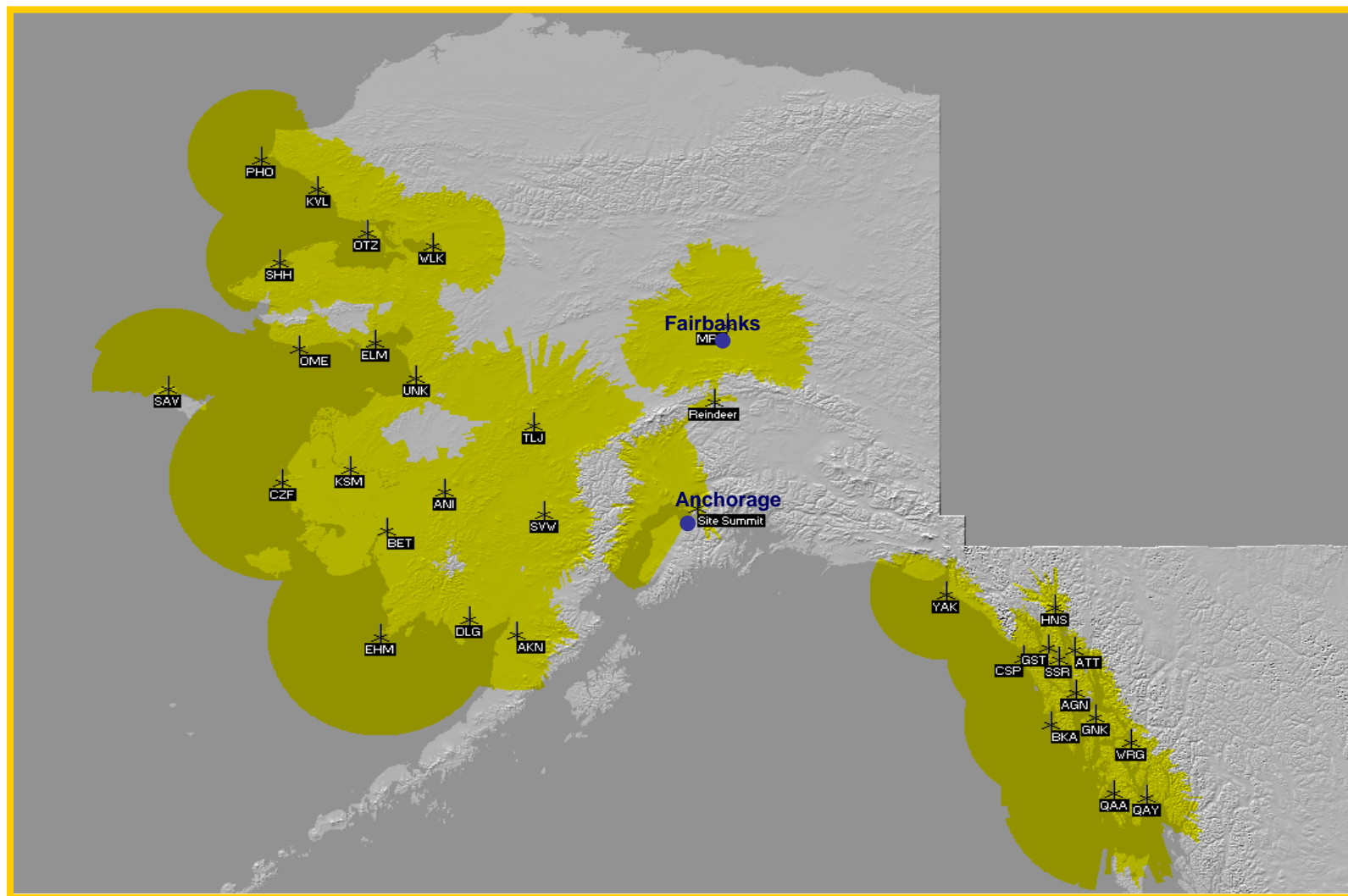




# Current Coverage @ 5,000 ft ASL



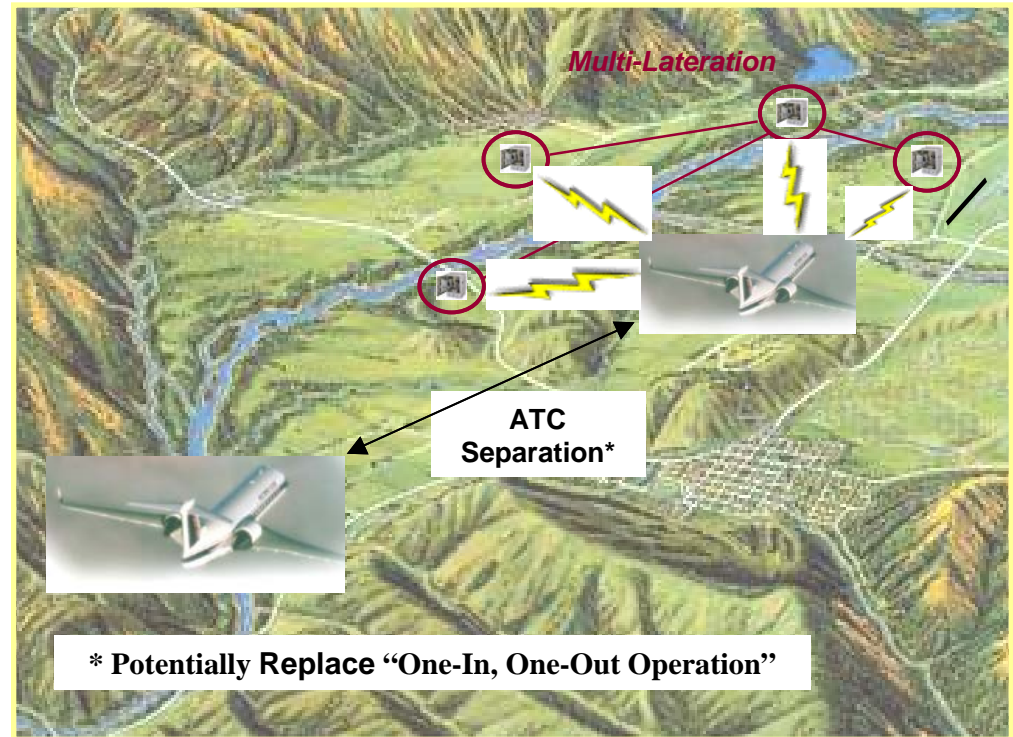
# 2010 Coverage @ 5,000 ft ASL



# Wide Area Multilateration (WAM)

- Multilateration is a surveillance technology that works by employing multiple remote sensors throughout an area to compensate for terrain obstructions.
- The data from multilateration sensors is used to determine aircraft position and identification. This data is processed for Air Traffic Control use and provides En Route separation services

Typical Mountain Approach (Single Runway/mountain airport)



Juneau, Alaska and Yampa Valley, Craig-Moffat, Steamboat Springs, Garfield County Regional in Colorado will be the first to receive multilateration systems.

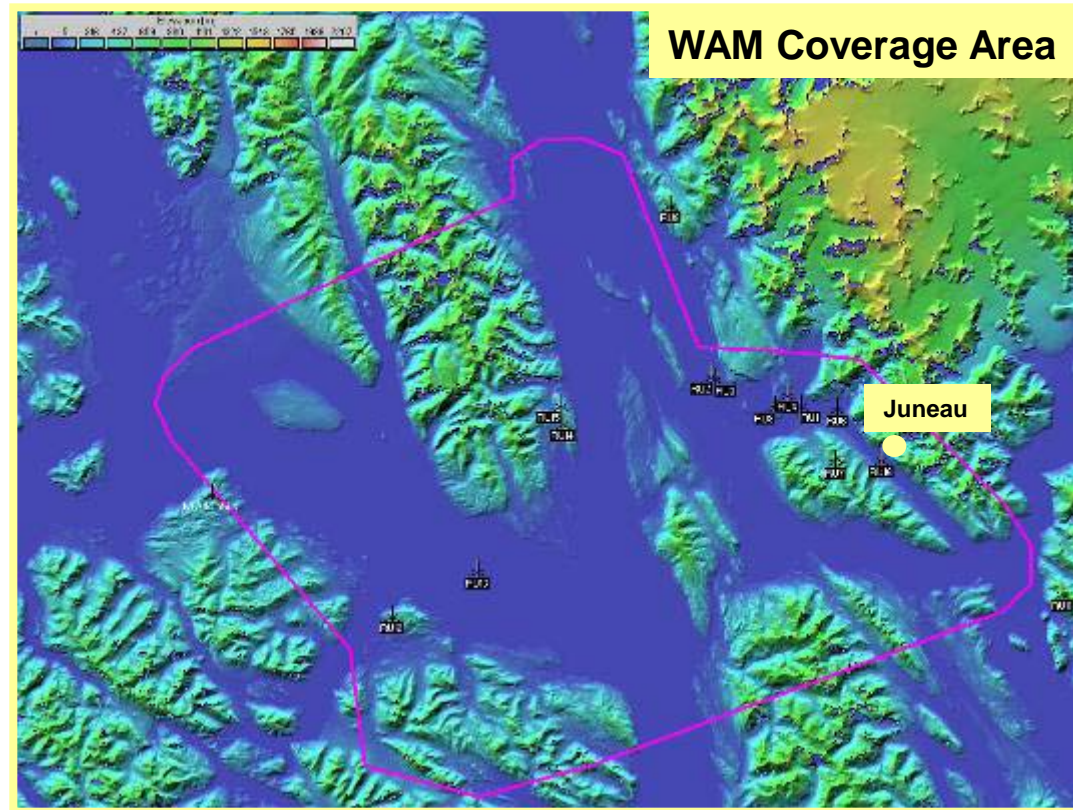
# Juneau WAM

## Initial Operating Capability – Nov 2009

- Able to use for air traffic control / separation services purposes
- Lower altitude surveillance for transponder equipped aircraft

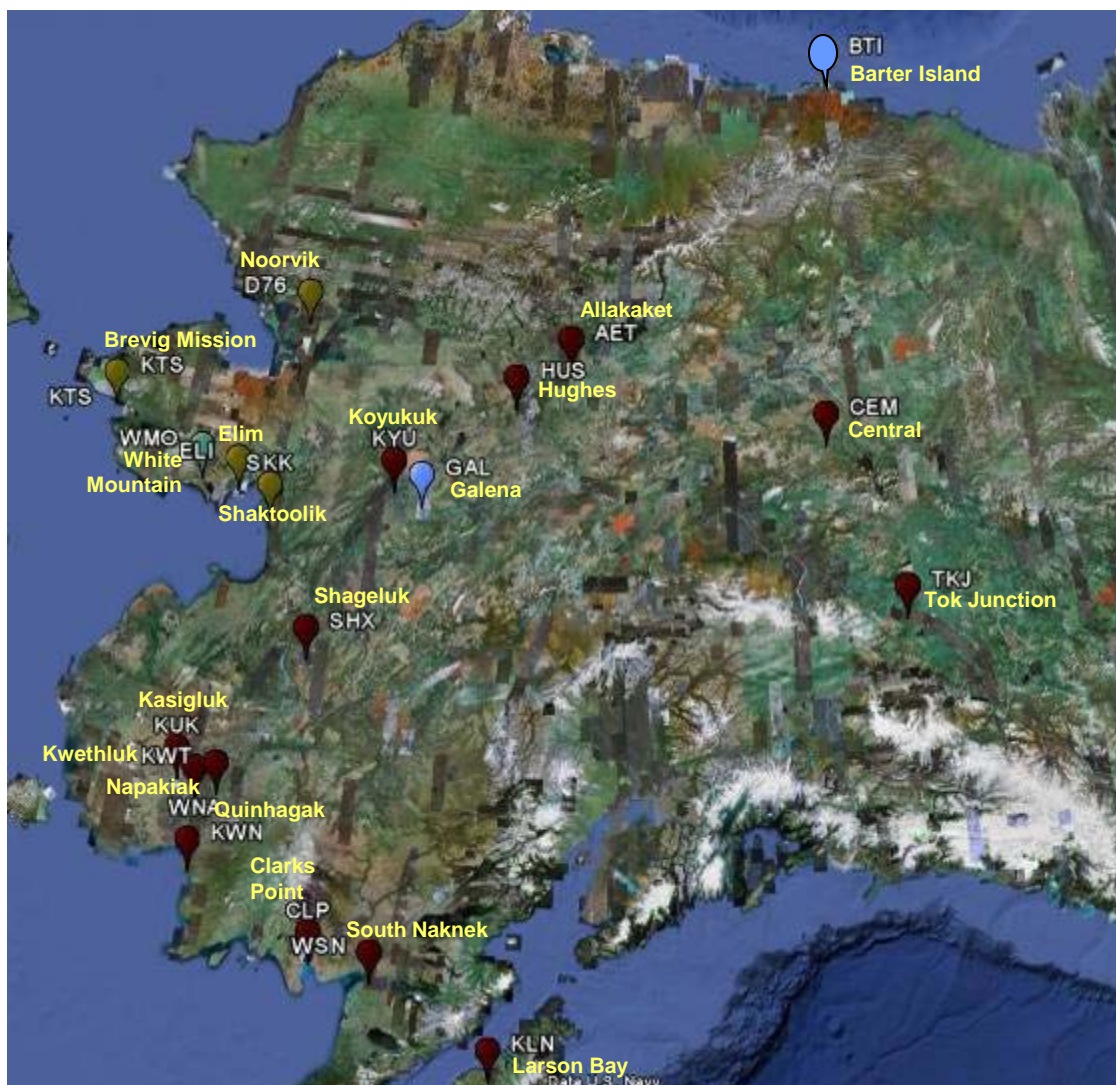
## Benefits

- **Enhanced Safety:** Increase safety by being able to see aircraft that are currently outside radar coverage
- **Improve Overall Flow Efficiency:** Improve arrival and departure efficiency
- **Benefits to ADS-B:** Backup surveillance for ATC separation services during an ADS-B outage
- Acts as a surveillance source for TIS-B
- **Economic Benefits:** Increased efficiencies with arrivals & departures



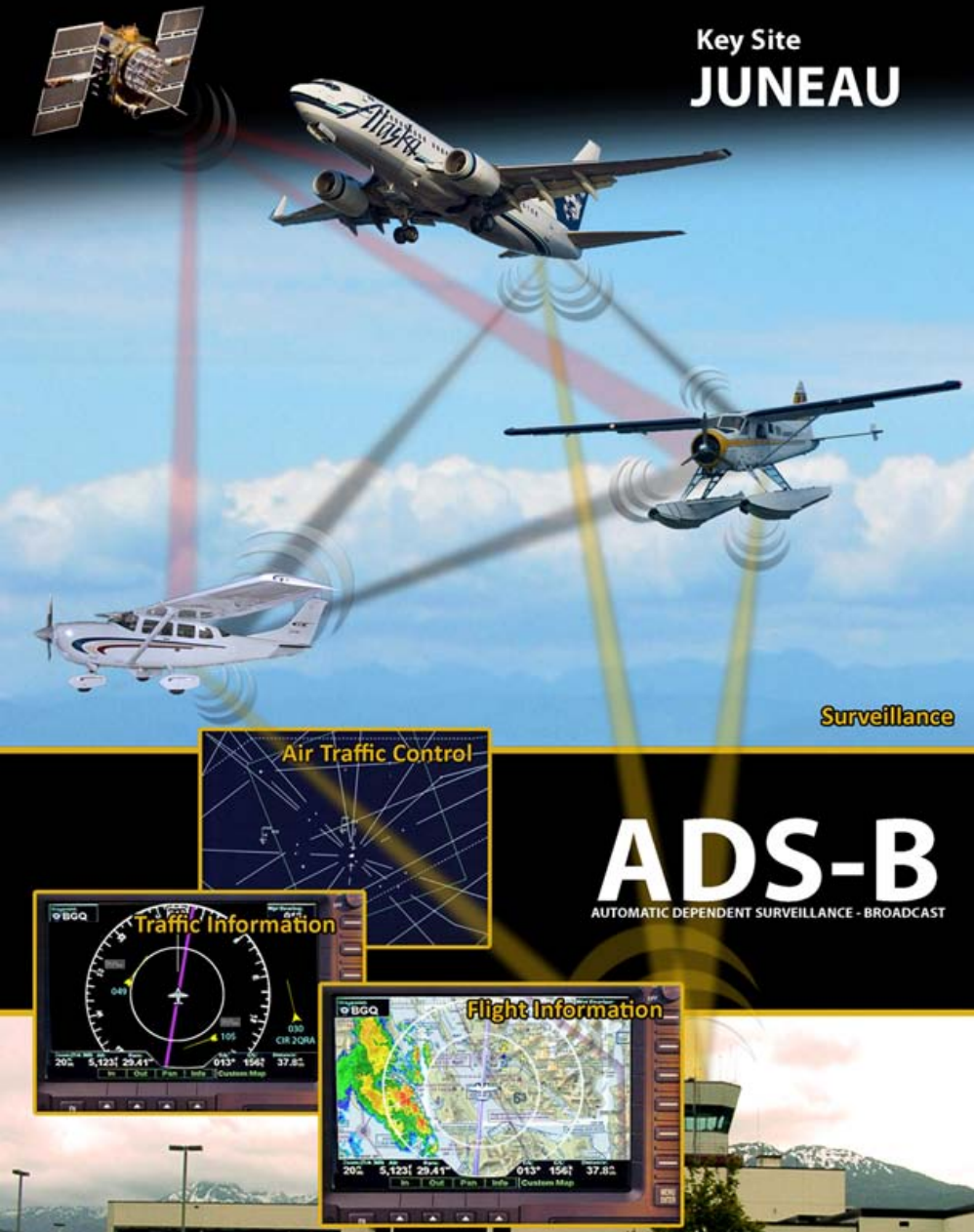


# IFR Airport Upgrades



Needs new AWS	Airport Code
Barter Island-installed	BTI
Galena-installed	GAL
<b>FY 10 Installation</b>	
Noorvik (Dec 2009)	D76
Shaktolik (Dec 2009)	SKK
Elim	ELI
Brevig Mission	KTS
White Mountain	WMO
<b>Installation based on equipage</b>	
Hughes	HUS
Allakaket	AET
Central	CEM
Larson Bay	KLN
Kasigluk	KUK
Koyukuk	KYU
Kwethluk	KWT
Napakiak	WNA
Quinhagak	KWN
Clarks Point	CLP
Shageluk	SHX
South Naknek	WSN
Tok Junction	TKJ
RCO	Airport Code
<b>FY 10 Installation</b>	
Brevig Mission	KTS
White Mountain	WMO
<b>Installation based on equipage</b>	
Larson Bay	KLN





Surveillance & Broadcast  
Services, WSA

**(W) 907-271-5780 –  
Program office**

[www.adsb.gov](http://www.adsb.gov)

# Current Aircraft Equipage in Alaska

## Aircraft equipped or committed to equip with ADS-B avionics

Current as of: September 16, 2009	Commercial equipped	Committed GA/Commercial	GA equipped	Unknown Certificate Type
Capstone Phase I-active	197			
Capstone Phase II - active	160			
Self-Equipped	<b>24</b> (was 21)		<b>17</b> (was 17)	*7
Committed		<b>74</b> (was 56)		
<b>Total</b>	<b>381</b>	<b>74</b>	<b>17</b>	<b>7</b>

<b>Total with Capstone Phase I &amp; II (equipped &amp; committed)</b>	<b>479</b>
<b>Total <i>without</i> Capstone Phase I &amp; II (equipped &amp; committed)</b>	<b>122</b>

<b>Current number of aircraft in AK</b>	<b>6,111 (active)</b>	8,874 (includes inactive)
---	---------------------------	---------------------------------

\* Includes 4 self equipped aircraft that have out of state registration

# Aircraft Overflights in Denali National Park

Tom George

Alaska Regional Representative



National Park Service  
U.S. Department of the Interior

Denali National Park and Preserve



# Soundscapes



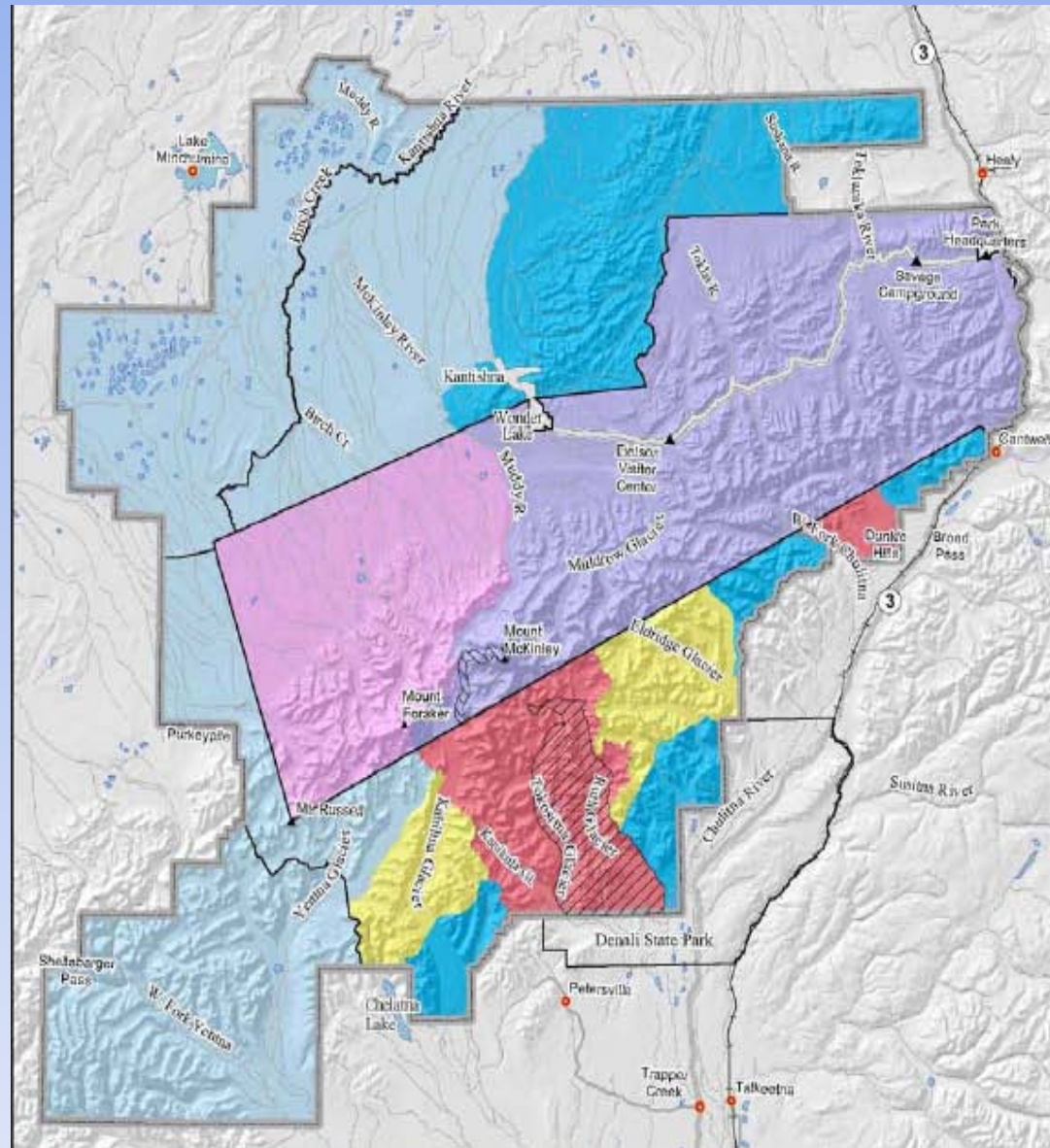


# 2006 Backcountry Plan

Calls for target levels of human-caused sound

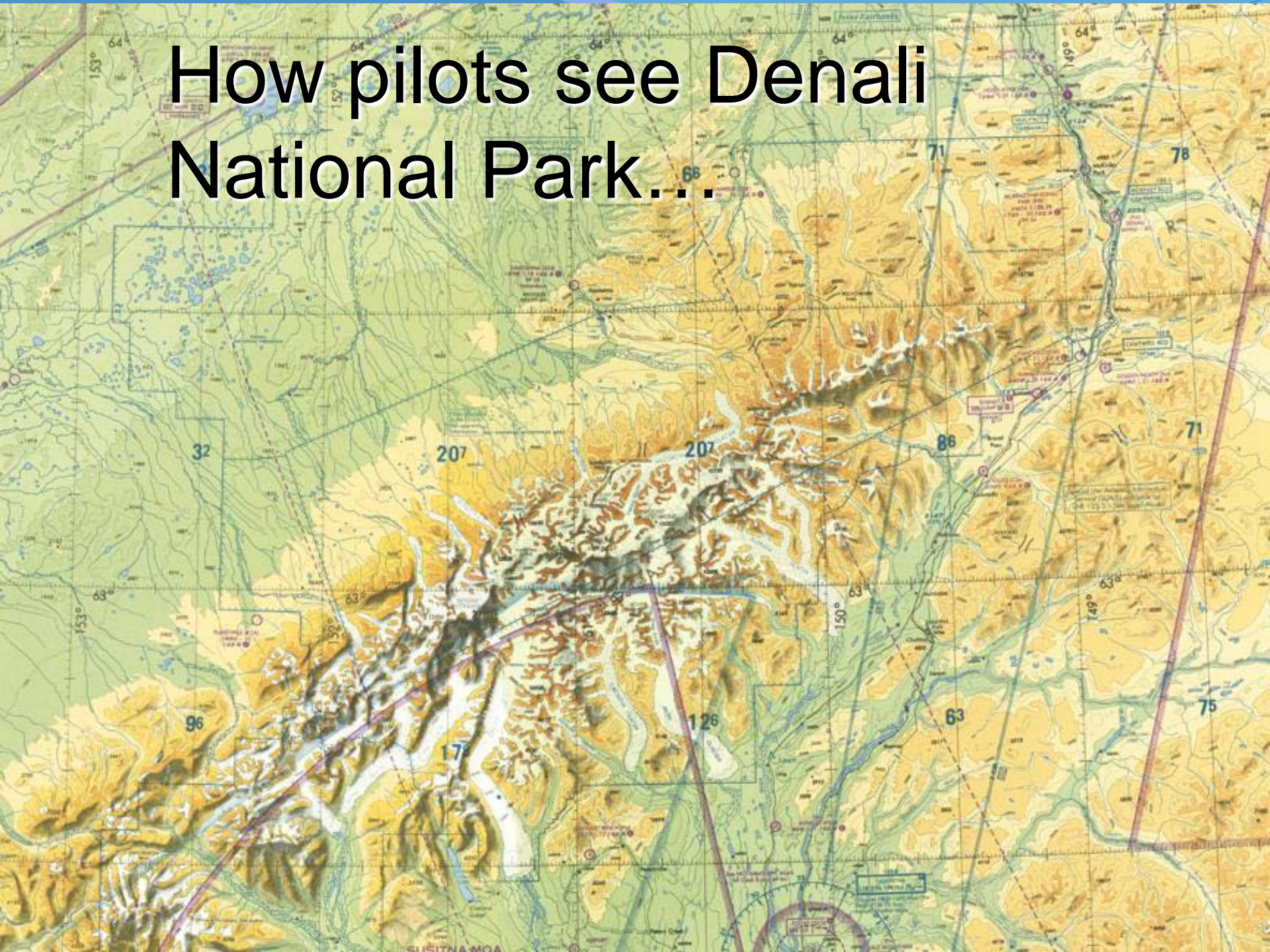
Denali Overflights Council established to-

“...develop **voluntary measures** for assuring the safety of passengers, pilots, and mountaineers and for **achieving desired future resource conditions at Denali.**”

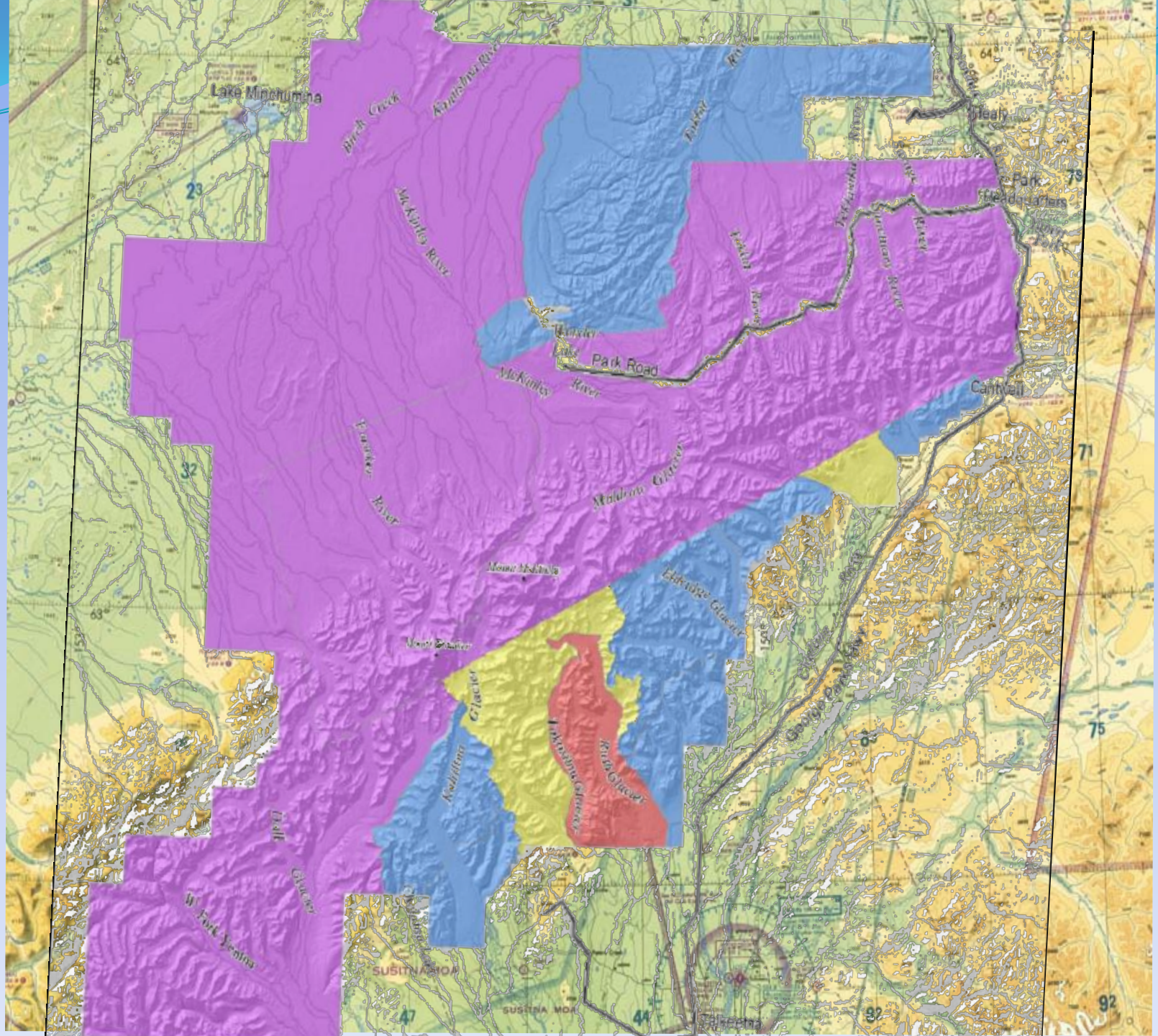




# How pilots see Denali National Park...







# Progress to date

## Council established in 2008

- Operates under the *Federal Advisory Committee Act*
- Developed an understanding of stakeholder issues and concerns
- Last spring developed initial “best practices” for Air Tour operators
  - Avoid areas with concentration of surface visitors, where possible
  - Mountain climbers, back-packers, hikers are key groups to deconflict
- Sound perception activity on July 17

# Sound Perception Activity Goals

- Understand aircraft sounds from a “person on the ground” perspective
- Quantify perceptions
- Compare perceptions to soundscape standards adopted by Denali National Park



# Scenario

- Create a “picnic” atmosphere, with controlled overflights
- Ask participants to rate each overflight
  - Scale of 1 – 5
    - 1 = Barely Noticeable (background)
    - 5 = Interrupts Activity (can’t carry on a conversation)
- Aircraft Participation
  - Super Cub, Cessna 182, Cessna 185, Beaver, Otter
  - Aircraft flew on the same flight path, different altitudes

# The Venue





# Flight Track

Soundscape 2

Gate Creek Cabin

Soundscape 1

Scotty Lake

Highway Camp



# Data Collection

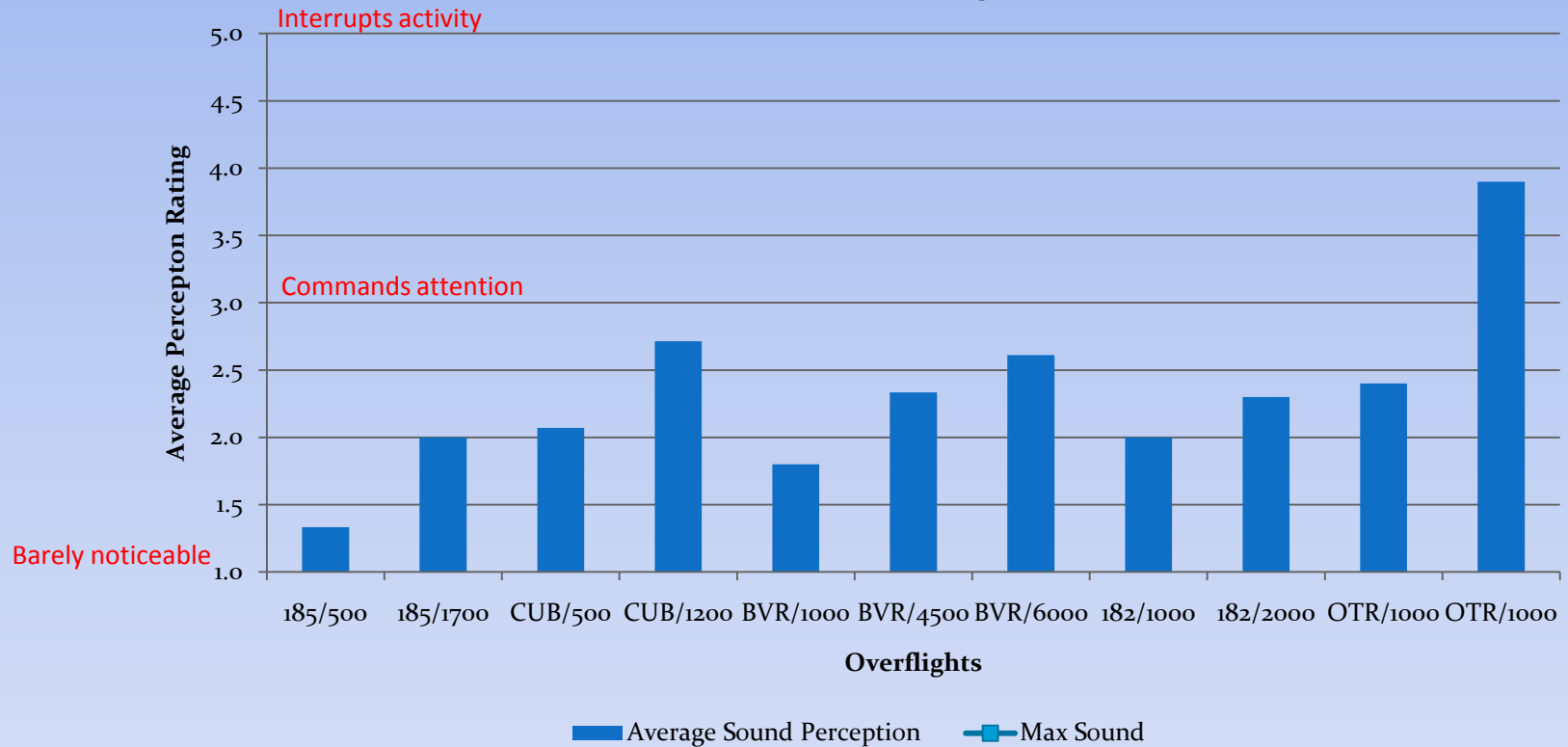




# Results

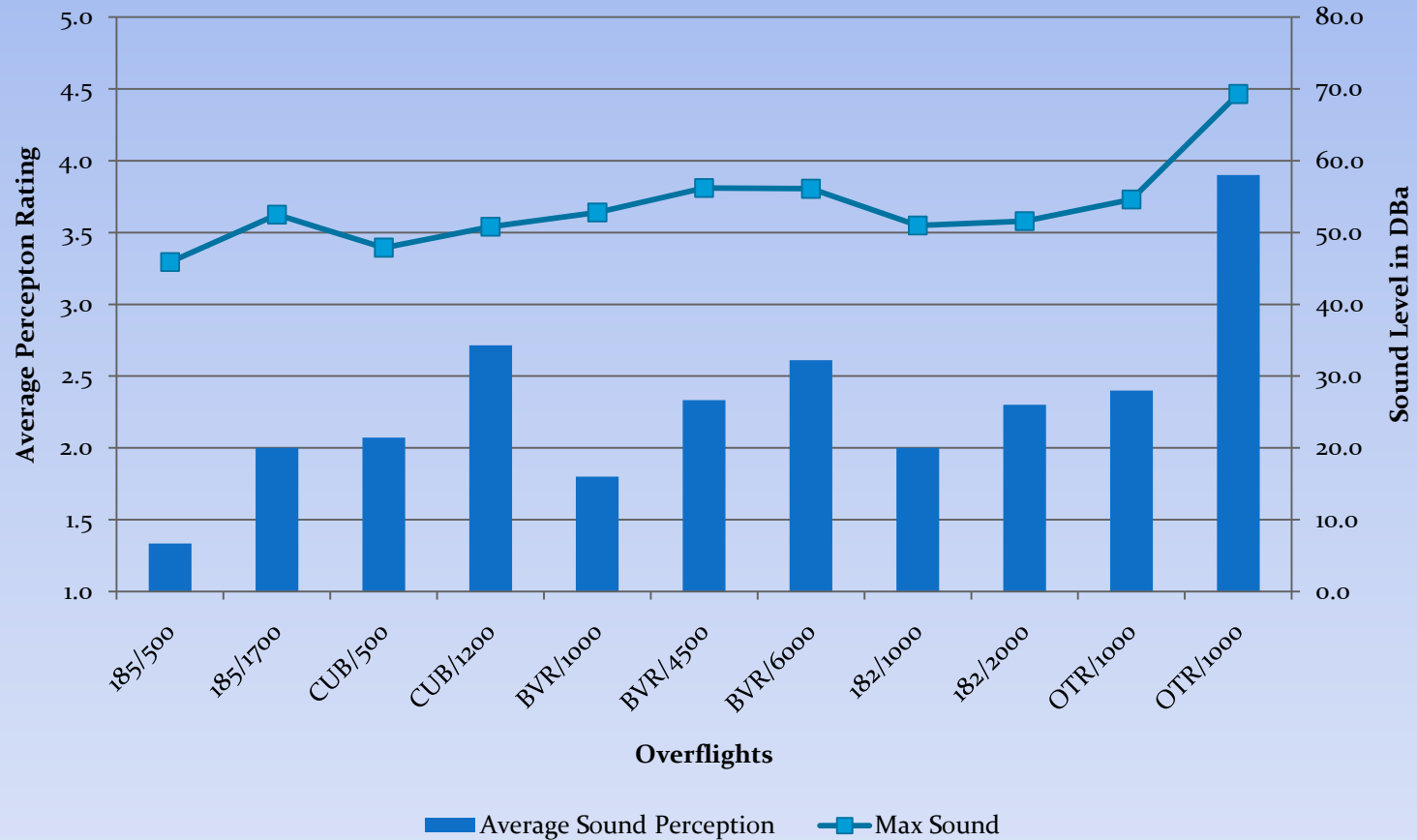
## Sound Perception vs Aircraft Type

Gate Creek Cabin July 17, 2009

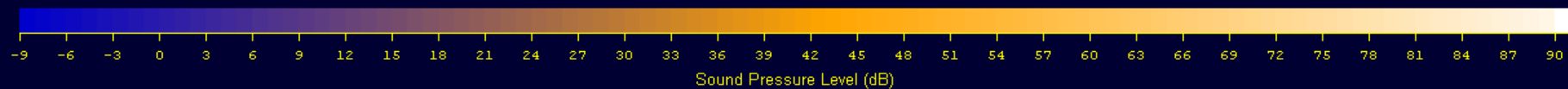
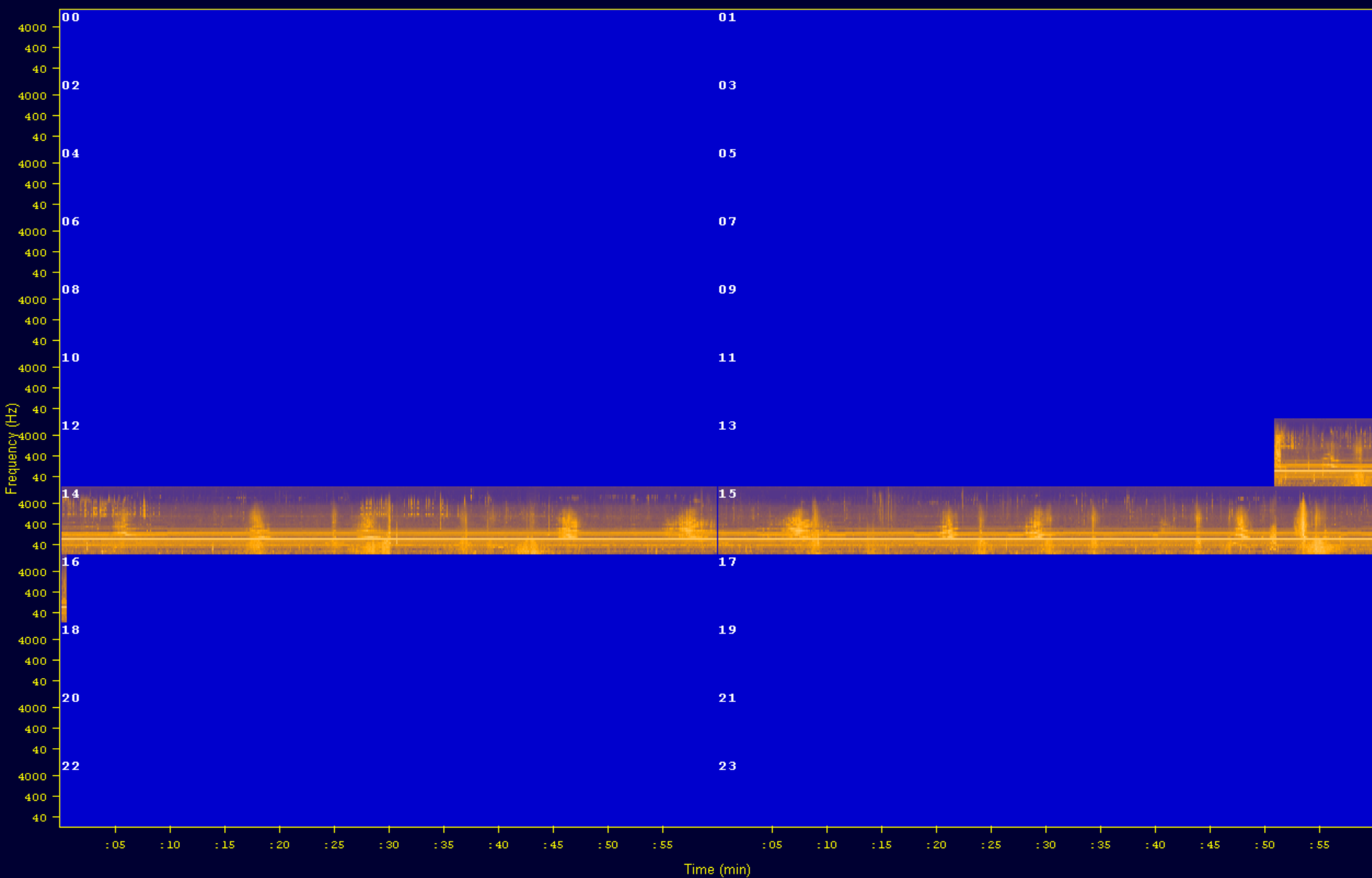


# Sound Perception vs Maximum Sound Levels

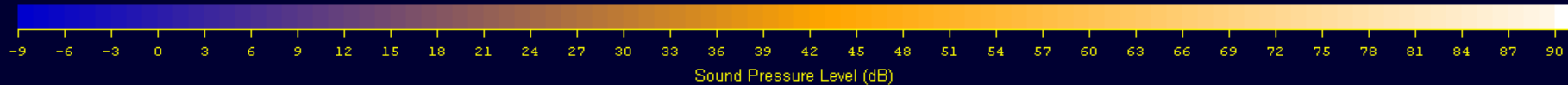
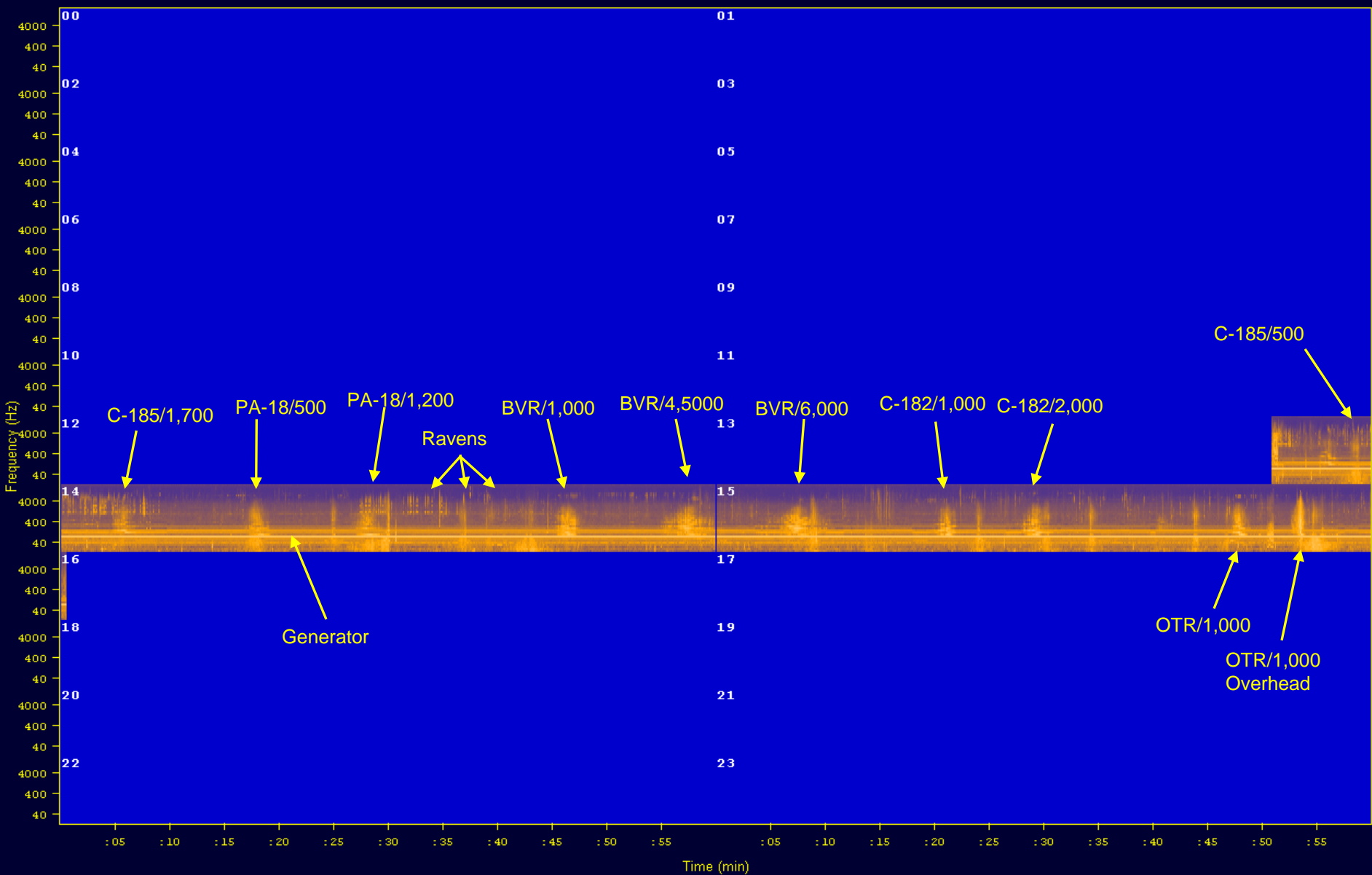
Gate Creek Cabin July 17, 2009



1/3 Octave Spectrogram for OACDAY09 on 2009-07-17 (Unweighted)



# 1/3 Octave Spectrogram for OACDAY09 on 2009-07-17 (Unweighted)





# How do we compare?

## Denali Backcountry Plan Standards

Category	%/Hour	# Audible/Day	Max dBA
Low	5%	1	40dBA
Medium	15%	10	40dBA
High	25%	25	60dBA
Very High	50%	50	60dBA

### July 17 results:

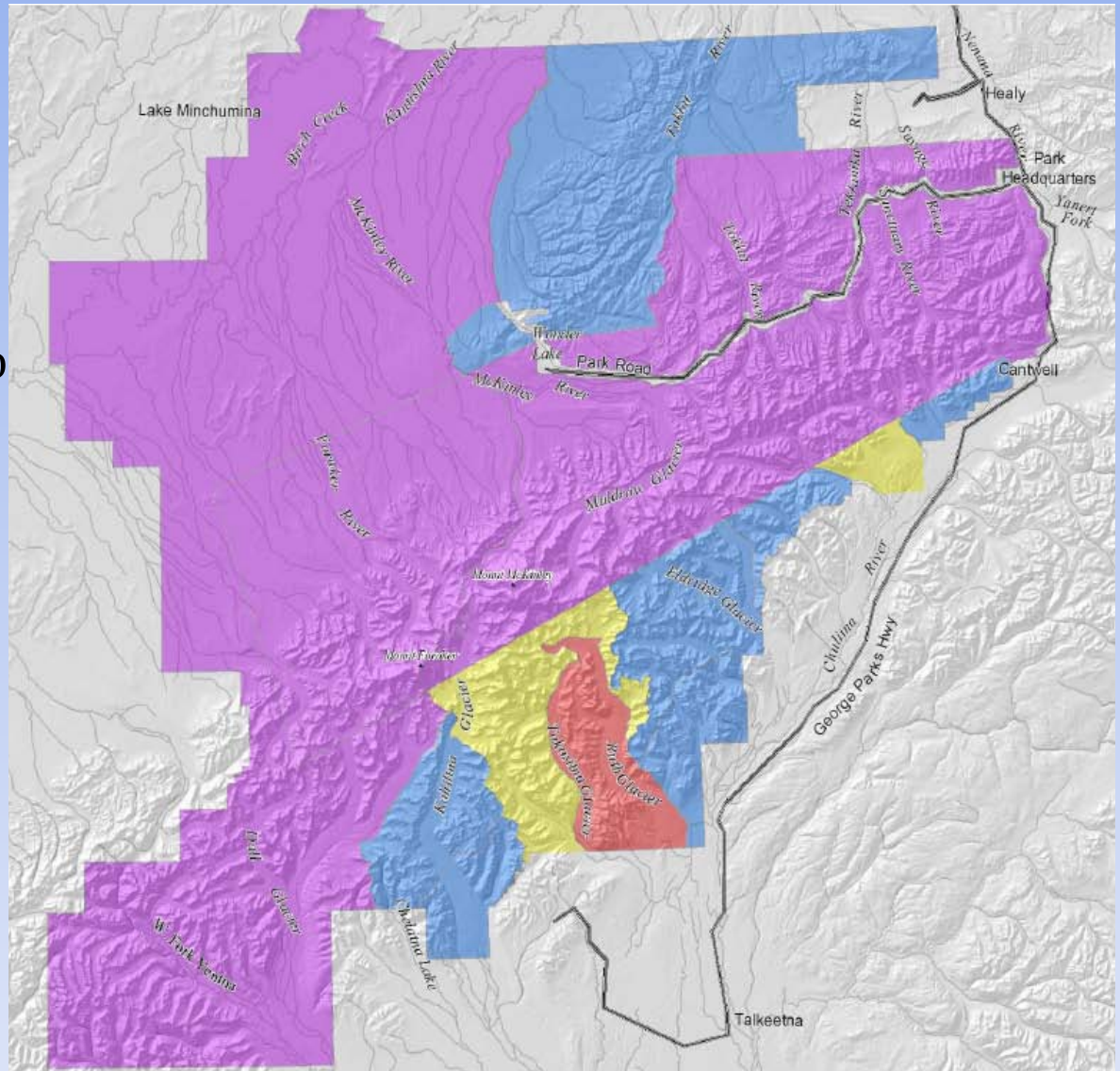
From the spectrogram analysis, aircraft percentage of time audible for the whole 2:10 session was 16.6%.

Number of aircraft events per hour was 5.

From the sound station data, the quietest overflight was 45.9dBa (185 @ 500), the loudest on the flight path was 56.2dBa (BVR @ 4500), overall loudest was 69.3dBa (OTTR @ 1000 overhead), and the mean of all overflights was 53.5 dBa.

# Soundscape Zones

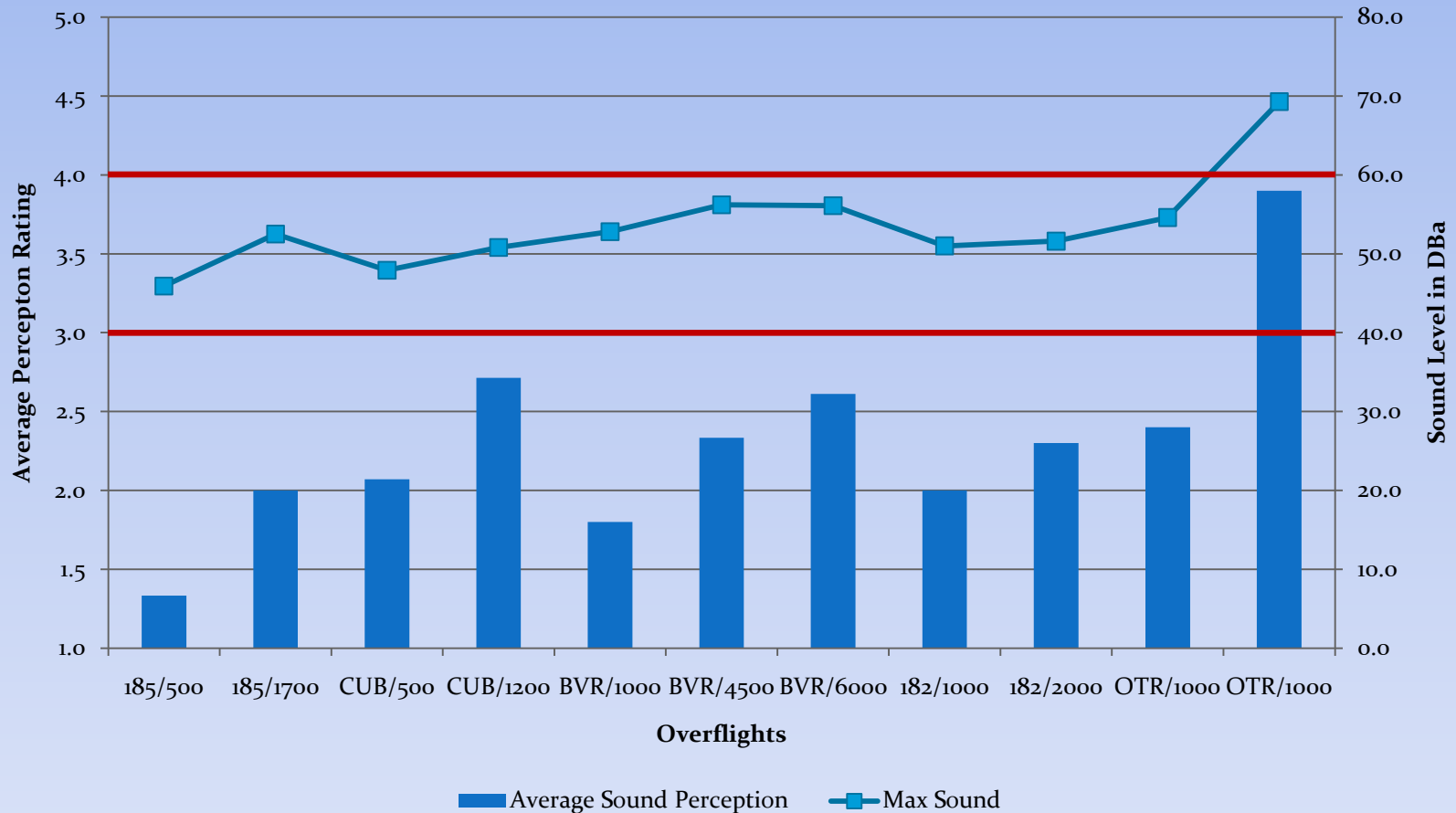
- Purple is the most restrictive sound standard
- Represents about 73% of Denali's 6 million acres



# Results

## Sound Perception vs Maximum Sound Levels

Gate Creek Cabin July 17, 2009



# Where are we today?

Work in progress...

- Results are not directly transferable to the backcountry
- More work is needed to evaluate the impact of aircraft sound on park users
- Education needed for all stakeholders:
  - Aviation community to be sensitive to surface users
  - Park visitors need to understand the role aviation plays in operation of the park.



# Integrating Unmanned Aircraft Systems (UAS) into the Global ATM System

**Name:**

**Richard Vickery**, FAA ATREP, Western Service Area,  
Elmendorf AFB, Alaska

**Date:**

4 November, 2009



**Federal Aviation  
Administration**



# Topic Areas to be Covered

- **Small Unmanned Aircraft Systems (sUAS)**
  - Model Aviation
  - Aviation Rulemaking Committee's recommendations
  - Rulemaking Activity
- **Considerations for Expanded Integration**
  - Examining "Manned vs Unmanned"
  - Definition of Sense and Avoid
  - Ground-Based Sense and Avoid (GBSAA)
  - Regulator Review
  - Certificate of Authorization or Waiver (COA)
  - Special Airworthiness, Experimental
- **FAA's partnership with Industry and Government**
  - UAS FAA – Industry Team (UFIT)
  - Control Station Research
  - Executive Committee (FAA, DOD, NASA, DHS)



# Federal Aviation Administration

Administrator  
J Randolph Babbitt

**Aviation Safety**  
Peggy Gilligan

Airports

Commercial Space

**Air Traffic Organization**  
Hank Krakowski

Flight Standards  
John Allen

ATO System  
Operations  
Nancy Kalinowski

UA Program  
Office  
James Sizemore (a)

[UAS Special  
Airworthiness]

Military and Other  
Government UAS  
Liaisons

Service Center  
(Ops Support Group)

Air Traffic UAS Office  
Ardy Williams

[Certificate of Waiver  
or Authorization]



# Small Unmanned Aircraft Systems (sUAS)





# Model Aircraft– Small UAS Aviation Rulemaking Committee (sUAS) [Recommendations]

- Model Aircraft operations allowed for recreational use without further consideration “IF” certain condition are met
- Model Aircraft operations not conducted in accordance with an FAA accepted set of standards established and administered by a community-based association shall:
  - Operate at or below 400’ AGL
  - Not to exceed 55 pounds
  - Remain within Visual Line of Sight and clear of clouds
  - Not be operated within 4 nm of the airport or heliport without permission of the airport/heliport and Air Traffic Control facility
- Objective is to allow for hobbyist to continue to enjoy Model Aviation in a safe manner - **Is only intend for recreational use**



# sUAS - Aviation Rulemaking Committee's [Recommendations]

- Definitions
- Subpart A. Model Aircraft
- Subpart B. Operating Rules
- Subpart C. Personnel
- Subpart D. Aircraft and Systems
- Subpart E. Alternative Means of Compliance
- Appendix A: Summary Matrix
- Appendix B: Summary of Recommendations for System Standards

**Follow Community Guidelines  
- or -  
Adhere to operating limits**

**Five Groups + Test Areas**

**Separate UAS requirements**

**Self-declaration based upon  
community standards (modeled  
after Light Sport Aircraft)**



# sUAS SFAR – Baseline Schedule

- Using the ARC Recommendations, develop a draft Notice of Proposed Rulemaking (NPRM) – March, 2010
- Complete the Safety Risk Management Process – May, 2010
- Coordination of NPRM through FAA, OST, and sent to OMB for public comment – March, 2011
- Resolve public comments and Issue final rule – November, 2012



# Considerations for Expanded Integration





# Examining “Manned vs. Unmanned”

## What do we need to establish for Unmanned Aircraft Systems?

- **Performance measures for contingency operations**
  - System failure characteristics
  - Lost command and control link
  - Degraded performance
- **Assessing impact on the NAS**
  - Comply with ATC instructions
    - Initiating turn to heading 270, level at an interim altitude, adjust speed
    - Variability in compliance – expediting a climb, go around, give way to others
    - Hold as published - expect further clearance
- **Behave in an “Expected” manner**



# Examining “Manned vs. Unmanned”

## Performance Gap Between UAS and Manned Aircraft

### Unmanned Aircraft



#### **Global Hawk**

- FL300 to FL600+
- Cruise 250 to 340 knots

#### **Predator**

- FL180 to FL450
- Cruise 140 to 240 knots

#### **Scan Eagle**

- 2,000' to 12,000'
- Cruise 40 to 65 knots

**How will  
differences in  
aircraft  
performance  
impact the  
NAS?**

### Commercial Aircraft

Cruise FL350 @ 500 knots



### General Aviation Aircraft

Cruise 5,000' @ 120 kts



# See and Avoid is not an ATC Function

- Air Traffic Optimized Radar does not depict everything in the NAS



# Sense and Avoid (SAA) Workshops

## FAA Unmanned Aircraft Program Office organized Workshops

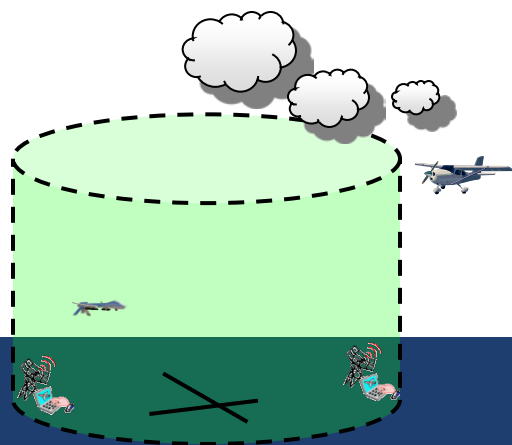
- Goals
  - Expedite requirements analysis of SAA systems
  - Describe concepts of use
  - Define key terms
  - Identify roles/responsibilities
  - Determine safety evaluation metrics and thresholds
  - Establish the framework on which to develop requirements
- Method
  - Bring multiple, disconnected activities together
  - Use common forum to define SAA
- Participants – By invitation only
  - Department of Defense (DoD) - Army, Air Force and Navy
  - Federal Aviation Administration – Unmanned Aircraft Program Office, Air Traffic (AT) Organization, Aviation and AT Safety
  - Collision Avoidance Experts – Massachusetts Institute of Technology Lincoln Labs, Mitre, Modern Technology Solutions, Inc.





# Ground-Based Sense and Avoid (GBSAA)

- Army led, DOD centered effort to use ground-based sensors to address the need for “Sense and Avoid”
- When successful, may provide
  - The ability to conduct night operations (objective) outside of restricted airspace
  - Expansion beyond limited operational area without use of a chase aircraft
- **Benefits**
  - “Measured Performance” vs. “Assumed”
  - “Consistent performance”



# Objective Regulatory Review

- Enable the process to establish an initial Type Certification basis and Continued Operational Safety strategies for UAS
- 14 CFR does not consider Unmanned Aircraft Systems unique design and operational characteristic
  - Does not address potential airborne hazards resulting from an Unmanned Aircraft (Sense & Avoid, Lost Link, etc) to other aircraft operating in the airspace
  - There is no identified aviation protected frequency spectrum to address control of UAS.



# FAA's partnership with Industry and Government



# UAS FAA & Industry Team (UFIT)

- FAA Aviation Safety Organization
  - Aircraft Certification: Unmanned Aircraft Program Office, Avionics Branch
  - Flight Standards Service
- FAA Air Traffic Organization
  - System Operations: Unmanned Aircraft Systems Office
  - NextGen and Operations Planning: Research and Technology Development Office, and William J. Hughes Technical Center
- Industry Partners via Cooperative Research and Development Agreement (CRDA)
  - 3 CRDAs formalized in June 2009
    - AAI Corporation
    - General Atomics Aeronautical Systems, Inc.
    - GE Aviation Systems LLC
- Others (TBD)
  - DoD, NASA, Academia





# UAS Performance Baseline

- UAS Flight Model validation
  - Shadow
    - Flight demonstration and data collection completed July 2009 in Huntsville, AL, in collaboration with US Army
    - Simulation data collection scheduled for August-September 2009
  - Predator-B
    - TBD (in discussions with AF, CBP)
- Initial NAS Integration Simulations
  - March 2010
  - Shadow & Predator-B operations in Jacksonville Air Route Traffic Control Center's airspace
  - Normal and Contingency operations
- Near-term UAS Operations Cherry Point
  - Simulations will explore proposed Shadow operations and explore Ground Based Sense and Avoid concepts
  - In collaboration with US Marine Corps and US Army
  - Scheduled for Winter 2009
- NextGen Concept Validation with UAS



# UAS Control Station Lab (Cockpit)

- High Level Objectives
  - Explore ground control station research concepts
  - Investigate feasibility of proposed technical solutions
  - Validate roles and responsibilities of pilot and flight crew
- Detail Level Objectives
  - Traffic information display (GBSAA) and integration into control station
  - Control station human factors investigations & research
- Consider Specific & Generic Control Station Designs
- Respond to Follow-on Activities from UAS Lab Discoveries
- Resource for RTCA SC-203 Research & Development and Modeling & Simulation requirements.



# NAS Integration Plans for UAS

Includes:

- Development of Strategic Roadmap
  - Tied to other organizations' near and mid term -Tactical Objectives
- Executive Committee
  - Identify common near, mid and long-term needs
  - Leverage limited resources
  - Alignment with Strategic Vision
- Workshops Near-term, Far-term
  - SAA – Methods Workshop
  - GBSAA – next Phases
  - Operational Procedures Workshops
  - Regulator Workshops



# Questions?

## A Safe and Efficient National Airspace System for All!



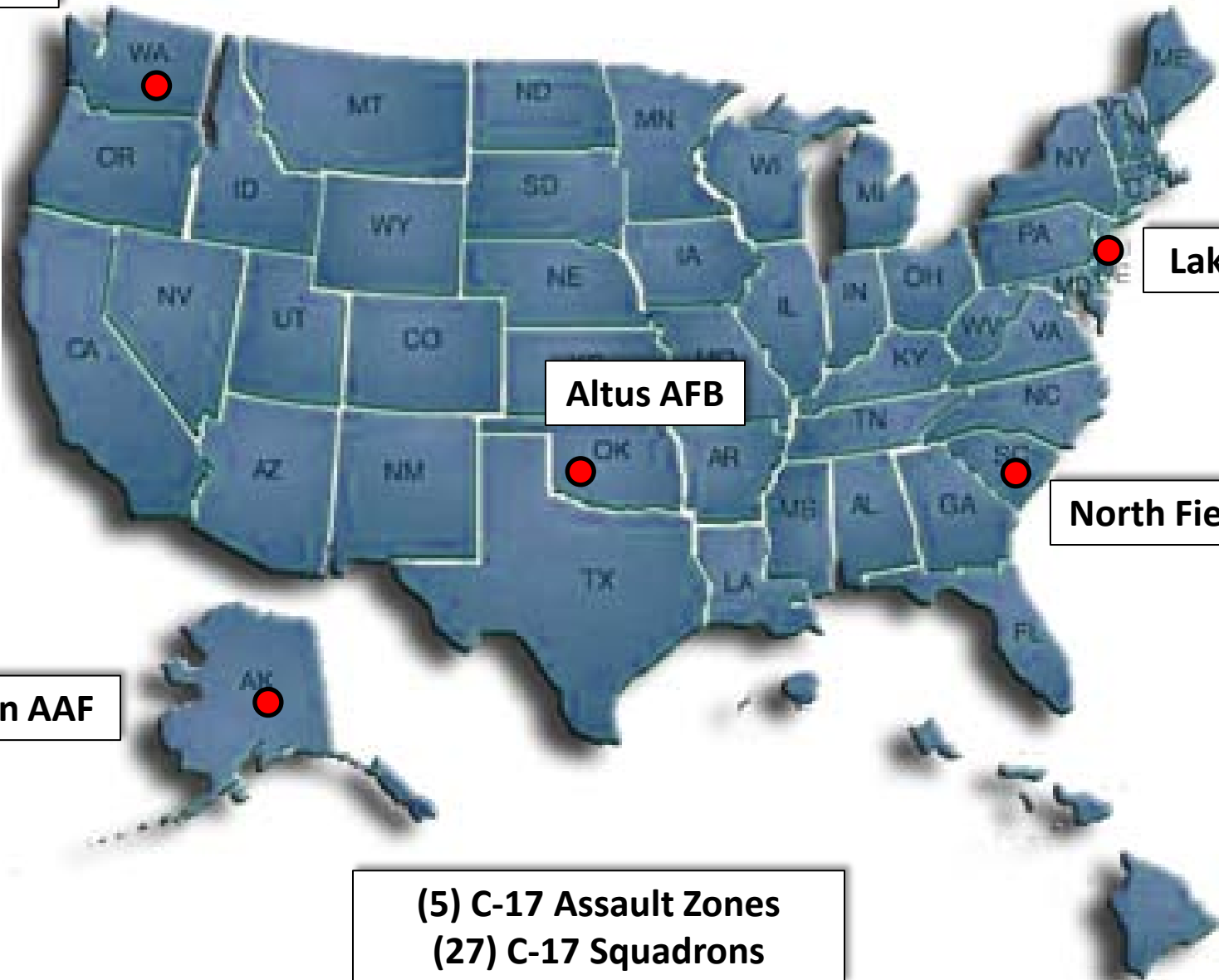


# Arctic Airlift -- C-17



# In Rare Company -- Allen AAF

Moses Lake



Lakehurst

Altus AFB

North Field

Allen AAF

(5) C-17 Assault Zones  
(27) C-17 Squadrons



# Tactical Center of Excellence



**Allen AAF LZ**  
Paved Assault Strip  
4,700' x 90'

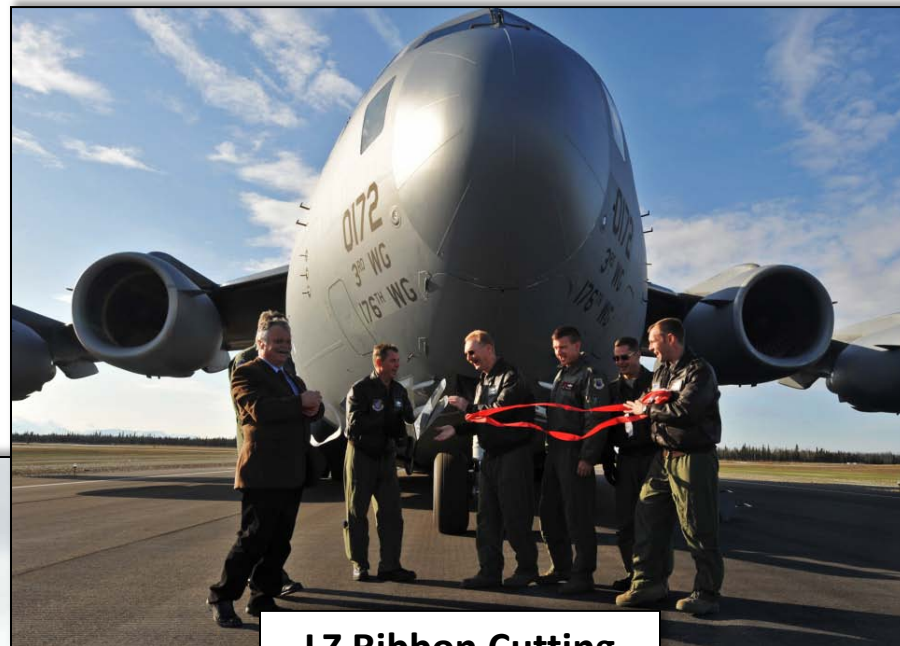


**Donnelly Flats LZ / DZ**  
Semi-Prepared Runway  
4,700' x 90'

# From Paper to Practice



**Allen LZ - 29 Sep**



**LZ Ribbon Cutting**



**USARAK Exercise**



**Donnelly Flats LZ**



# From Practice to Reality





# Into the Future -- Allen AAF



Airdrop



Night / NVG Operations

PHOTO: © 2009 JOHN M. DIBBS



PHOTO: © 2009 JOHN M. DIBBS

# Questions

Maj Denis Paquette  
3d Operations Group, Stan/Eval  
907-552-3203  
[denis.paquette@elmendorf.af.mil](mailto:denis.paquette@elmendorf.af.mil)







# ***Eleventh Air Force***

***Integrity - Service - Excellence***

# **BREAK TIME**



# ***ALASKA CIVIL/MILITARY AVIATION COUNCIL***

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*Integrity - Service - Excellence*

## **AIRSPACE UPDATE**

**Maj Rob Peck  
611 AOC/CODK**

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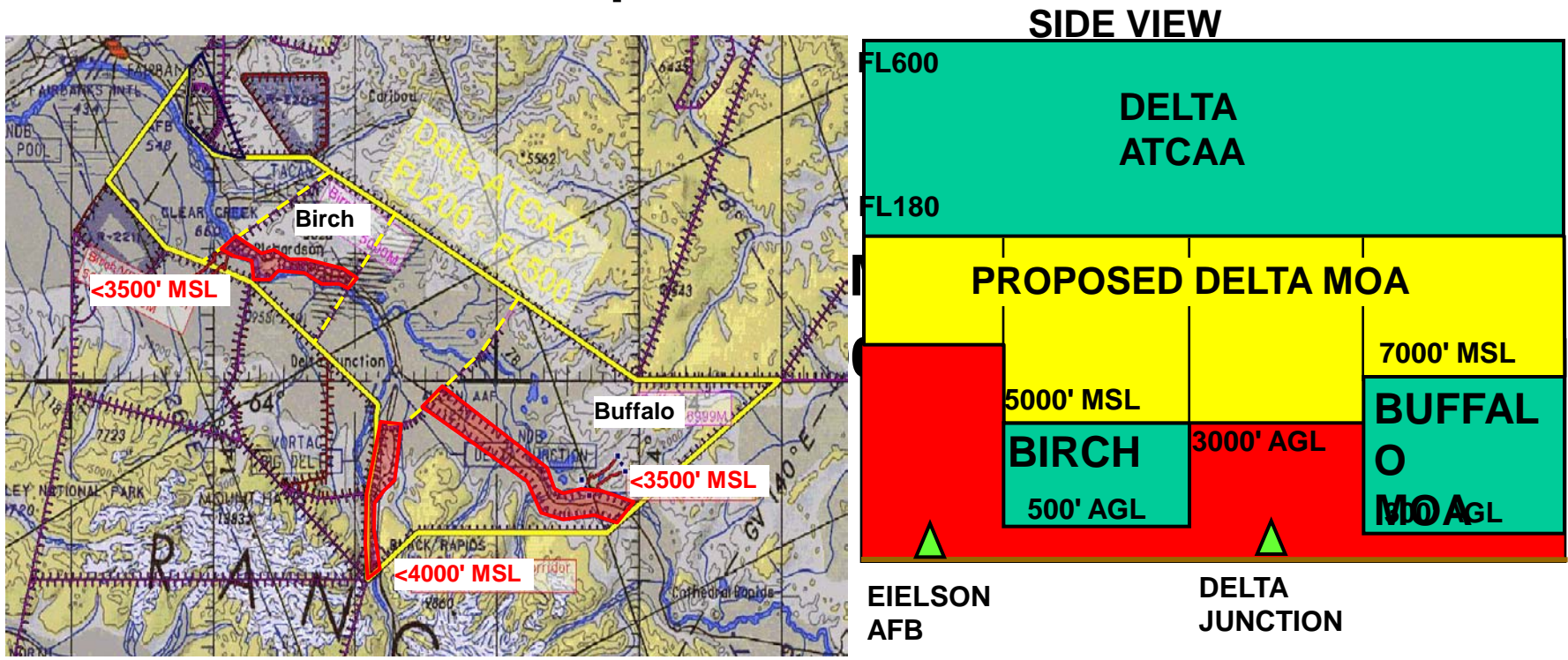
# Overview

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- 1. Delta MOA Update**
- 2. Gulf of Alaska EIS**
- 3. Military Training Route Update**
- 4. Sub-ACMAC Update**
- 5. JPARC EIS Update**

# Delta T-MOA

- Charted (Permanent) Delta MOA
  - FONSI this month
  - FAA decision ~spring 2010
- Delta T-MOA out for public comment thru 7 Dec 09



# Gulf of Alaska EIS (Navy) Update

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- Info at [www.GulfofAlaskaNavyEIS.com](http://www.GulfofAlaskaNavyEIS.com)
  - Draft EIS Release to Public: Dec 09
  - Public hearings and Review: 7 Jan – 12 Jan 10
  - Final EIS Release to Public : Mid 2010
  - 30-Day Public Review Period: Mid 2010
  - Record of Decision: Dec 2010

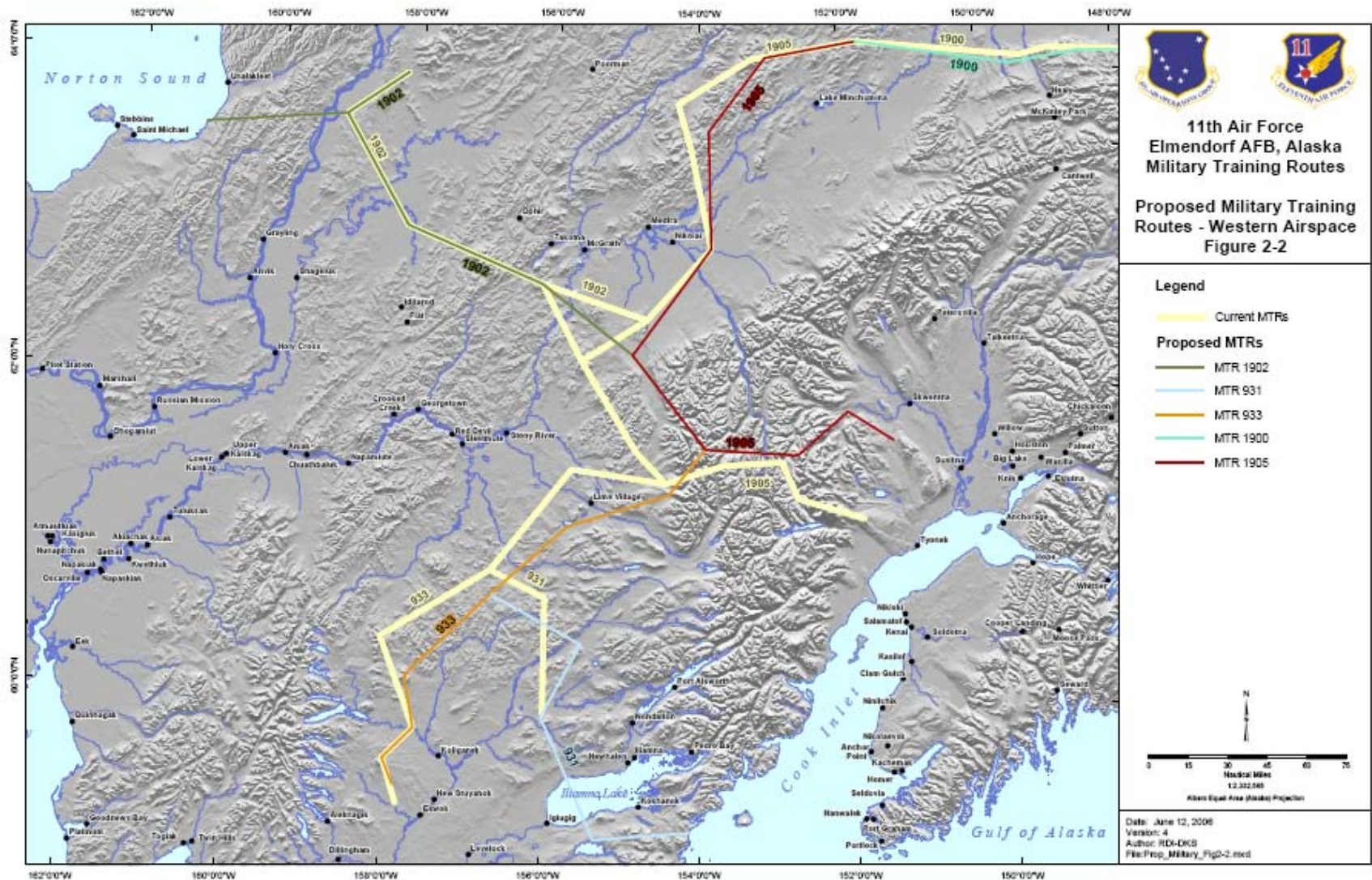


# **Military Training Route (MTR) Update**

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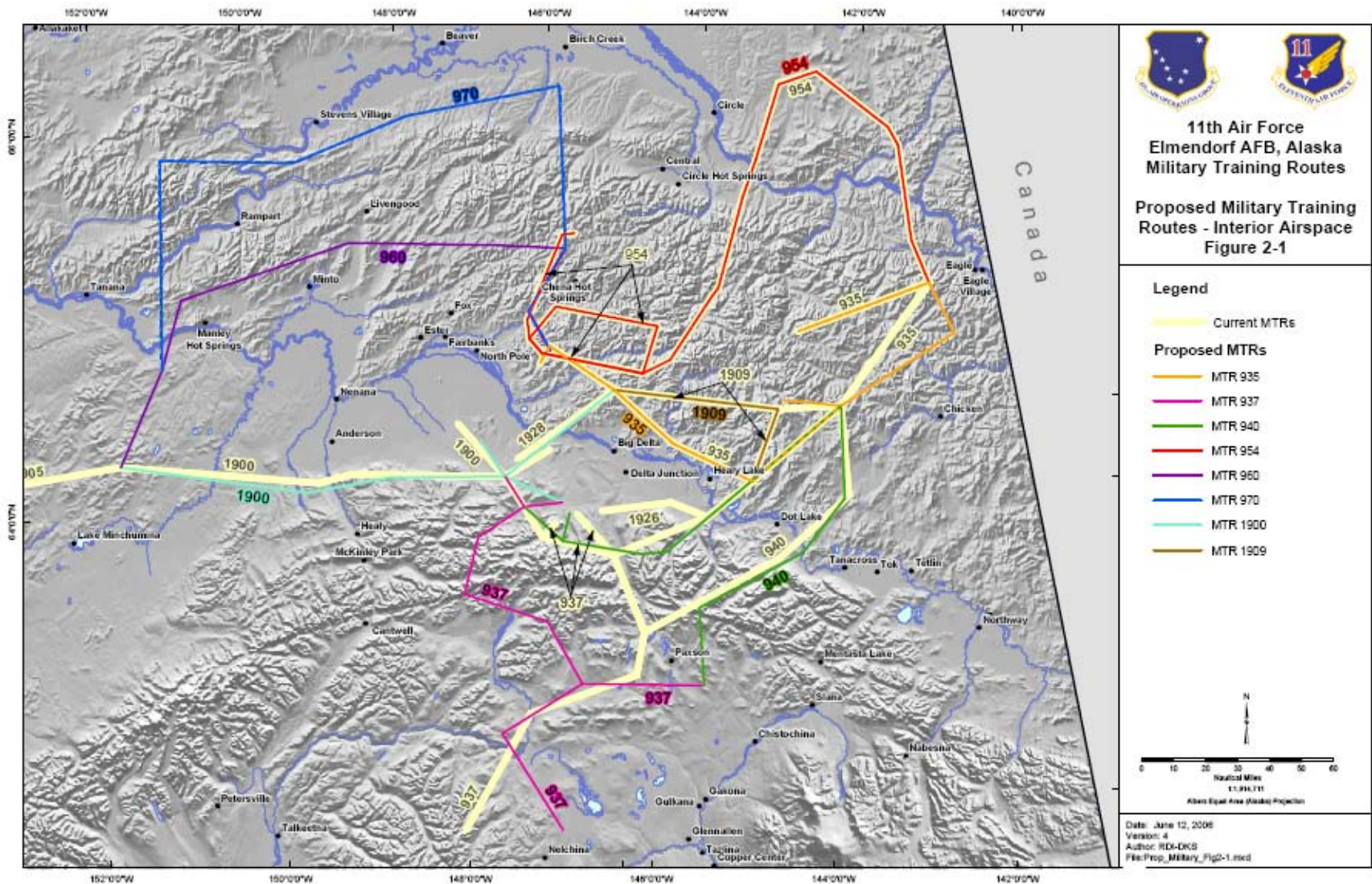
- **Final FAA Package approved in Sep 09**
  - **Modified MTRs to avoid noise/environmental sensitive areas**
  - **Extended MTR to coast line on two routes**
  - **Two new MTR 960/970 routes not included in final FAA package**
- **Will be affective on 17 Dec 09**
  - **Information available on the Alaska Military Airspace web page [www.elmendorf.af.mil](http://www.elmendorf.af.mil) then under featured links select “Alaska Airspace Info”**

# SOUTHERN MTR's OVERVIEW





# NORTHERN MTR's OVERVIEW



# Sub-ACMAC Update

---

- **North Committee meeting Sep 09**
  - **GPS Jamming Jul/Aug Red Flag-Alaska exercise**
    - NOTAM needs refining
      - Realistic times
      - More accurately depict the area affected
      - Point aviators to more specific info (i.e. SUAIS)
    - Distribute details out via aviation organizations
  - **Using military airfields as weather diverts/alternates**
    - Non revenue personal aircraft required official business prior to being granted a Civil Aircraft Landing Permit (CALP)
  - **Denali Over Flight Advisory Committee update**



# JPARC EIS

---

- **Umbrella JPARC EIS NOI expected Summer 2010**
  - **Look at cumulative affects for DoD training activities within Alaska including Military Airspace.**
  - **Allow for the development/management of DoD training assets to meet the needs of**
    - **Joint DoD training and exercises**
    - **New and improved technology**
    - **Testing requirements**
    - **Increase in military assets in Alaska**
    - **New aircraft with enhanced capabilities**
  - **JPARC Master Plan, Restricted Area Feasibility study, and EIS being conducted by SAIC**
- **Military is obligated to American people to be good stewards of airspace and integrate our training**

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# QUESTIONS?



# ***Eleventh Air Force***

***Integrity - Service - Excellence***

# OPEN FORUM



# ***Eleventh Air Force***

***Integrity - Service - Excellence***

## **CLOSING COMMENTS**

**Col Marc A. Luiken**